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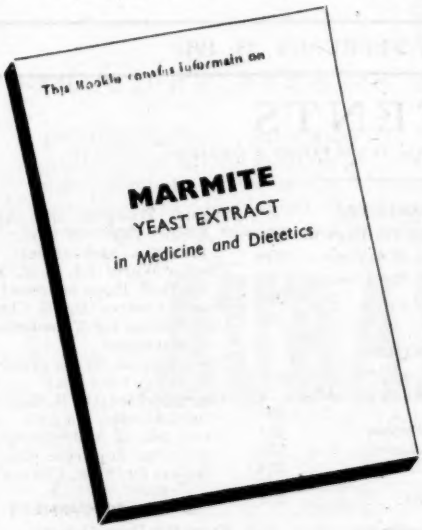

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TUBERCULOUS CERVICAL ADENITIS *

HAMILTON BAILEY
F.R.C.S., F.A.C.S., F.I.C.S., F.R.S.E.
SURGEON, ROYAL NORTHERN HOSPITAL; GENERAL SURGEON, METROPOLITAN EAR, NOSE, AND THROAT HOSPITAL, LONDON

THERE have always been cases, especially in children, in which the cervical adenopathy subsides, sometimes so rapidly that one wonders whether the infection was really tuberculous. Such cases serve not only to inflate the list of cures by any method of treatment that invokes the aid of the great healer Time but also to bolster the exhibition of problematical and fantastic remedies.

Edward the Confessor (1042–66) introduced the "king's touch" from France, where it was believed that the digital contact of an anointed monarch brought about resolution of the inflammatory mass. With succeeding kings of England this method of treatment became increasingly popular. Charles II (1660–85) touched on an average 10,000 sufferers a year. In addition, he presented each with half a sovereign; possibly the latter adjuvant added to the popularity of the vogue. The "king's touch" held the therapeutic field for more than 600 years. It was given up in 1714 with the death of Queen Anne.

From France too came a real medical advance. Lugol's laborious life-time researches on scrofula are now forgotten, but his solution, the administration of which was one item only of his plan of treatment, keeps his memory alive. Lugol fully recognised the value of fresh air and bathing in the treatment of this condition.

Therapeutic pendulums are for ever swinging. Sometimes they swing too far and become unhitched. The treatment of chronic peptic ulcer swung from medical to surgical treatment, back to medicine, and once more to surgery. The treatment of thyrotoxicosis has likewise oscillated; indeed, it is only this year that the thyrotoxic pendulum has returned from a brief sojourn in a thiouracilic stratosphere.

RISE OF SURGICAL TREATMENT

Curiously, it was a physician, the eminent British physician Sir Clifford Allbutt, who conceived the idea of radical removal of tuberculous cervical lymph-nodes. Aided by his able Leeds surgical colleague, Pridgin Teale, in 1882 he sent the pendulum of treatment of tuberculous cervical adenitis (fig. 1) on its meteoric swing towards surgery (Allbutt and Teale 1885). Sir Clifford's idea, which appears to have been original, was to extirpate all the cervical nodes—a unilateral block dissection of the neck. Contemporary surgical papers illustrate flaps and incisions similar to those used today for the eradication of secondary malignant deposits. By 1900 these dissections had come to occupy an important place in the operating lists of this and other countries, for the results obtained by master surgeon-anatomists were immeasurably better than those obtained by any mode of treatment up to that time. This was an era when specialist surgeons were comparatively few, and they graduated to the operating-theatre by long years of dissecting and teaching in the anatomical department. A block dissection of the neck was just the type of operation at which they excelled.

FALL OF SURGICAL TREATMENT

Dissections of the neck, particularly extensive block dissections, are time-consuming and tedious. As Koenig stated, the surgeon must have iron patience and plenty of time. Plenty of time, at any rate, was not possessed by the surgeon-in-charge of a large service, especially when the surgery of the abdomen was assuming such great importance. Consequently cases of cervical adenitis became relegated to the end of the operation list for the junior man to undertake. Indeed, the operation of removal of tuberculous lymph-nodes came to be looked on as an operation that almost anyone could undertake safely, for the operative mortality was very low.

About this time the surgeon's training was undergoing a metamorphosis. No more was long and close connexion with the dissecting-room the be-all and end-all of surgical apprenticeship. Unquestionably, the rising generation of surgeons, with their greater clinical, physiological, and pathological training, were better equipped for abdominal and other newer branches of surgery than were the passing generation. The relative lack of familiarity with the anatomy of the neck, combined with the inexperience of many of those undertaking cervical surgery, led to frequent nerve lesions, discharging sinuses, ugly scars, and many recurrences. This was one factor accounting for a change in the direction of the pendulum's swing. The other—a far mightier momentum—culminated in a catastrophic counterswing against the use of the scalpel. During the first decade of the present century, Rollier, Sir Henry Gauvain, and others established beyond doubt that exposure of the surface of the body to the rays of the sun, combined with suitable skeletal traction to tuberculous joints, led not only to arrest of bone necrosis but also to regeneration of bone, cure of the disease, and often full restoration of function. As a result of this great advance in knowledge the operative treatment of "surgical tuberculosis" perished.

It is, in my view, unfortunate that tuberculous cervical adenitis, particularly those cases where the lesion was localised, were lumped in with bones and joints under the general heading of "surgical tuberculosis." As I hope to show, sufferers from a curable localised lesion have been denied the advantages of quick rehabilitation afforded by a well-performed operation, and fully 90% have never had, nor are they likely to have in our day and generation, the benefits of institutional natural heliotherapy, which is the quintessence of the therapeutic measures that banished the scalpel.

The world's solariums and open-air hospitals had a few vacancies for cases of tuberculous cervical adenitis, and good results were found to accrue after months, sometimes years, of heliotherapeutic institutional treatment.

Even in those halcyon days there was insufficient room in these special hospitals to accommodate even a small proportion of the patients under consideration. In spite of being cognisant of this fact, those responsible for the treatment of tuberculosis followed Sir Robert Philip in condemning all operative interference.

The term "operative interference," introduced by bygone physicians as a substitute for the more dignified and accurate nomenclature "operative intervention," suggests something of the nature of criminal assault; indeed, it is no exaggeration to say that in a few instances prejudice-ran so high that this was the impression that was intended, for I have suffered from it.

Sir Robert besought that surgeons should be constrained to hold their hands. Lesser lights in tuberculosis circles went further and, after gathering a small series of cases that had been referred to the local hospital for operative treatment, denounced all operations for this condition as a barbarous practice. Incidentally several of these investigators had omitted to ascertain who had performed the operations, or what operation had been performed, before reaching this conclusion. As a result of these outpourings the operative treatment of tuberculous cervical adenitis became taboo; any bloodless method was preferred. Since most sufferers from localised tuberculous lesions in the neck could not obtain admission to heliotherapeutic institutions, some substitute for natural sunlight with bed occupation had to be found. This gave tremendous impetus to exponents

* Part of the opening of a discussion at the annual meeting of the Tuberculosis Association on Nov. 14, 1947.

of tuberculin, X-ray treatment, radium, and artificial sunlight lamps. Added to this, the outpatient surgeon was pleased to be able to transfer these numerous rather uninteresting cases to another department where there was at least a fair prospect of relief, without the occupation of a surgical bed.

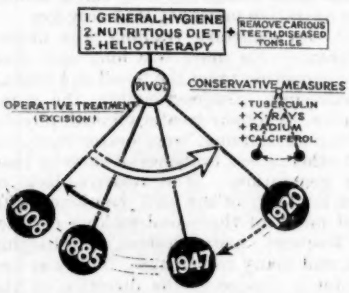


Fig. 1—Swinging pendulum of fashions in treatment of tuberculous cervical adenitis.

So came about the fall of surgical treatment—and great was the fall thereof.

PERSONAL OBSERVATIONS

It was when the pendulum had swung away from surgery to its uttermost that I stepped upon the academic surgical stage—certainly only as a super in the extreme back row of a chorus which was chanting melodiously to an audience of medical students "Calot's oblique aspiration of tuberculous cervical abscess" and echoing the principal boy who yodelled "Transfer them to the X-ray department." The great teaching centres of London, Liverpool, Birmingham, and Bristol, with which I was concurrently associated, could be taken as typical of the world's medical schools. I never saw the surgical chiefs operate on the neck for tuberculous lymph-nodes. At this very time Dowd (1905, 1908, 1916), of New York, and Sutcliffe (1903), of the Royal Sea-Bathing Hospital, Margate, were obtaining superb results and quick rehabilitation by modifying the older block dissections to thorough local extirpations through incisions following the creases of the neck, and combining surgery with practical general treatment, but their work received little or no attention.

Fig. 2—Squamous-celled carcinoma developing after prolonged X-ray treatment of tuberculous cervical lymph-nodes in a woman aged 31.

During the past twenty years of my interest in these cases I have watched the army of X-ray and radium enthusiasts dwindle to a corporal's guard. Even if it were efficacious in a high percentage of cases, X-ray treatment is not without serious disadvantages. It converts the skin into leather and produces underlying fibrosis. Occasionally X-ray burns are encountered. On rare occasions malignant disease follows irradiation (fig. 2).

PORTALS BY WHICH THE TUBERCLE BACILLUS ENTERS

Tonsils, adenoids, and carious teeth are undoubtedly the main portals by which tubercle bacilli enter the cervical lymphatic system.

Tonsils.—That the infection most often occurs via the tonsils is undeniable. Overwhelming clinical support is afforded by the frequency (54%) with which upper jugular lymph-nodes are attacked. If tubercle bacilli are brushed upon the fauces of healthy animals, tuberculous cervical adenitis can be produced, more easily in animals where the tonsil is relatively large, such as the pig, than in those where it is rudimentary, notably the guineapig. In swine the disease, when localised, is usually situated in the lymph-nodes near the angle of the jaw. The term scrofula comes from the fact that swine (fig. 3) are subject to a like affliction.

Adenoids.—That adenoids are probably a portal of importance second only to the tonsils has not received the attention it deserves. In 22% of cases the posterior triangle is primarily involved, and a high percentage of the victims are young children. It is unlikely that the tubercle bacillus gains entrance from the scalp, which is rightly looked on as the main portal to these nodes. Since some of the lymphatic vessels from the adenoid area pass directly to lymph-nodes of the posterior triangle (fig. 4), there is everything to be gained by assuming that airborne infection reaches the nodes of the posterior triangle through this often diseased filter.

Carious Teeth.—After the posterior triangle, the submaxillary lymph-nodes are the next most often diseased (12%). Here the portal of entry is almost certainly carious teeth. Tubercle bacilli have been demonstrated in decayed root-pulp of extracted teeth (Moorhead 1912).

Fig. 3—Sow with cervical adenitis. Positive intradermal tuberculin test of left ear (after Moussu).

The moral is that, whatever treatment is adopted, diseased tonsils and adenoids should be removed and necessary dental treatment undertaken. Experience has taught me that, if the removal of tonsils is undertaken before the operation on the lymph-nodes, the latter is almost always more difficult because of secondary infection by pyogenic organisms. Further, the stage of collar-stud abscess and sinus formation is more rapidly reached.

NATURE AS A SURGEON

This affliction progresses through four local stages which, like Hogarth's rake, pass from bad to worse.

Stage 1.—When a tuberculous lymph-node (or a confluent group of lymph-nodes) breaks down and liquefies, tuberculous "pus" is at first limited by the fibrous envelope of the nodes.

Stage 2.—In many cases, in due course, the envelope bursts and the pus comes to occupy that confined space limited by the deep cervical fascia. Stage 2 is often missed without the clinician even suspecting it. In this connexion I wish to draw attention to a physical sign that I have found reliable when applied to a strictly limited group of enlarged lymph-nodes of the upper jugular chain. It is in this situation that the arrival of stage 2 most often escapes notice, and it is here too where knowledge of its presence is most desirable. If, when the neck is viewed in a good light in several positions, the swelling can be seen as well as felt, stage 2 has been reached.

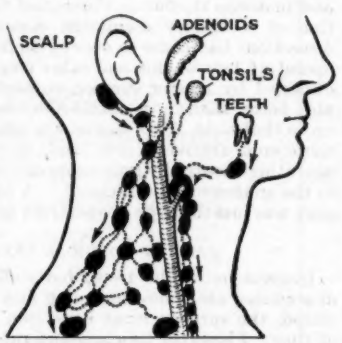


Fig. 4—Portals by which tubercle bacillus enters lymphatics of neck.

Stage 3.—After weeks or months the dense deep cervical fascial sheath becomes eroded at one small point, and the imprisoned pus, joyous as it were to escape from such a confined space, wells into that commodious compartment beneath the yielding superficial fascia. Thus, sometimes overnight, is reached the well-known stage of what the French so graphically described as *bouton de col*—collar-stud abscess (fig. 5). Insufficient attention has been directed to the clinical entity that I have termed "long-stemmed collar-stud abscess" (fig. 6). In about 25% of cases the superficial abscess does not overlie the breaking-down lymph-nodes that feed it. Indeed, the factory and the store-house may be as much as 6–8 in. apart. Because of the length of the stem of the stud, Nature finds it extremely difficult to perform her bloodless operation of extruding the necrotic material.

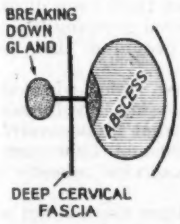


Fig. 5—Collar-stud abscess.

Stage 4.—Still left to Nature, the superficial abscess steadily enlarges until the skin over its centre becomes inflamed. The abscess bursts and the resulting sinus continues to discharge until, in favourable circumstances, the last of the necrotic material beneath the deep cervical fascia is expelled. "Verily is Nature a slow and bad operator," I inwardly remarked when I was shown a partially calcified caseating remnant of a tuberculous cervical lymph-node that had just been extruded from a sinus after many months of conservative treatment at the most renowned solarium in the world.

Fig. 6—Long-stemmed collar-stud abscess.

Contrary to what is sometimes stated, the scars left by Nature's operation are not always so good as those that result from the use of a scalpel.

HINDERING NATURE

Aspiration

My cup of joy would be full if I could persuade those in charge of these cases to give up entirely aspiration of tuberculous cervical abscesses. I am well aware of Calot's oblique technique, and I have given it an extended trial. My conclusions are based on hundreds of cases performed by as many operators in several widely separated parts of the country. I do not refer to the excellent though often depressingly slow results that commonly accrue from adopting this method when the patient is under constant supervision, as would be the case in a heliotherapeutic hospital. My call is directed to all those who have not at their disposal an institutional bed immediately available (and free for several months) for every case of collar-stud abscess.

The leading causes of the high proportion of bad results following aspiration carried out on outpatients are:

(1) The abscess cavity refills more quickly than was anticipated, and either the patient does not report the fact or a locum tenens inserts a hollow needle into the centre of the swelling.

(2) The greater part of the abscess cavity is filled with material not sufficiently liquefied to pass through the hollow needle.

At all events the very thing that has been the clinician's desire to avoid is present—i.e., a patch of skin over the centre of the swelling, sodden, reddened, and threatening to break down. What chance of success is there in the average outpatient? During the past eight years 300 cases have been referred to me where this form of treatment had not prevented skin involvement or sinus formation.

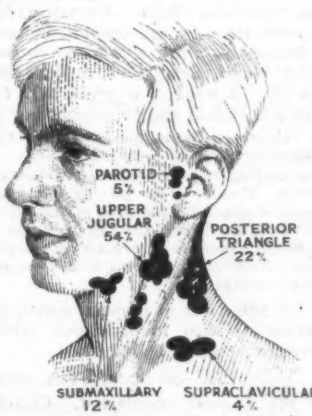
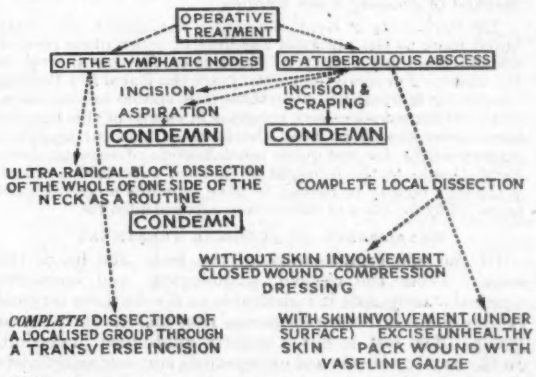


Fig. 7—Various groups of cervical lymph-nodes affected by tuberculosis, founded on 372 consecutive cases. The 3% not labelled are divided between mid-jugular group shown and submental group not shown.

Curettage

For more than sixty years tuberculous cervical adenopathy has been hitched to a bone-and-joint band-waggon. It is ironical, as well as unfortunate, that passengers in the trailer, who in latter years have been riding so roughly, should continue to be accorded what is most obviously a prerogative of the Pullman-berthed waggon passengers. Volkmann designed his spoon for scraping away necrotic pieces of bone. As Atkinson (1936) says, to scrape blindly down a fistula in the neck is not only inefficient surgery but also dangerous. No doubt, as a result of the trauma and secondary infection, scraping produces cement-like induration of the tissues—induration far greater than that produced by X-ray therapy; induration that sometimes dismays even a seasoned dissector. Curettage is not divorced from the disaster of disseminating tuberculosis. My immediate medical colleagues can quote several examples where death from disseminated tuberculosis quickly followed this procedure in patients who previously had no signs of tuberculosis except a localised lesion in the neck. To scrape soft tissues, particularly those like the neck where the vascular supply is abundant, is the antithesis of the highest attainment of surgery, which is to aid Nature.


OPERATIVE TREATMENT
OF THE LYMPHATIC NODES
OF A TUBERCULOUS ABSCESS
INCISION ASPIRATION
INCISION & SCRAPING
CONDEMN
CONDEMN
ULTRA-RADICAL BLOCK DISSECTION OF THE WHOLE OF ONE SIDE OF THE NECK AS A ROUTINE
COMPLETE LOCAL DISSECTION
CONDEMN
WITHOUT SKIN INVOLVEMENT CLOSED WOUND COMPRESSION DRESSING
COMPLETE DISSECTION OF A LOCALISED GROUP THROUGH A TRANSVERSE INCISION
WITH SKIN INVOLVEMENT (UNDER SURFACE) EXCISE UNHEALTHY SKIN PACK WOUND WITH VASELINE GAUZE
Fig. 8—Scheme of general principles of operative treatment of tuberculous cervical adenitis.

It is my fervent hope that this procedure will be abandoned, and most tuberculosis officers with whom I work associate themselves with this plea.

AIDING NATURE

The *British Medical Journal* (1871) obtained from several hospital surgeons their opinions about the treatment of tuberculous cervical abscesses. Most were in favour of early incision, using a puncture with a tenotomy knife. Treves (1882) advocated cautery puncture. In my opinion his advice was good. When presented with a patient with a collar-stud abscess for whom admission to hospital cannot be obtained within a week, I suggest that tuberculosis officers and others should empty the abscess as follows:

Infiltrate the skin over the centre of the swelling with a drop or two of local anæsthetic. Having heated a large aspirating needle to bright red heat, plunge it through the skin. Evacuate the pus by firm expression. Place a sterile pad of gauze on the area of the puncture. Over this apply a 'Viscopaste' bandage firmly, so as to splint the neck. The patient should be instructed to attend weekly for reapplication of the dressing until he or she has obtained suitable hospital accommodation.

If this method is used, multiple sinuses and extensive areas of skin involvement, which are at present so frequent, would be banished.

PILLARS OF SUCCESSFUL SURGICAL TREATMENT

(1) *A good anæsthetist.*—Under general anæsthesia, particularly when the airway is not free, intravenous pressure rises. Diminutive veins wax proud, main tributaries become formidable vessels, the internal jugular vein and veins of kindred girth billow into mighty bags of blood that collapse suddenly in inspiration, almost at once to rise again and well-nigh burst should the patient cough. That the anæsthetist should be experienced in intratracheal methods, especially in children, is of vital importance.

(2) *The surgeon* should have some special training before undertaking these cases. Since there are very few who have had the necessary training, surgeons used to thyroid surgery and many progressive otorhinolaryngologists are especially adaptable to this work. Any surgeon with a good knowledge of the anatomy of the neck can quickly become adept, provided he has the time and patience to undertake the dissections, which on no account should be relegated to the end of the list for the house-surgeon to carry out.

(3) *Diseased tonsils and adenoids* (especially adenoids) should be removed by an otorhinolaryngologist or a surgeon specially trained in the removal of adenoids.

(4) *Convalescence.*—Provision should be made for adequate convalescence up to two or three months in an institution with a sister especially trained in the correct method of dressing open wounds.

The fair county of Kent, the garden of England, has contributed more to the practical handling of tuberculous cervical adenitis than any county in England or, for that matter, in the world. For more than sixty years the Royal Sea-Bathing Hospital at Margate has given these cases special consideration, and the eminent successive surgeons in charge of this hospital have never ceased to keep the lamp of cervical operative surgery alight for the quick rehabilitation of selected cases. Kent, thanks to the foresight of its chief tuberculosis officer, is the only county in Britain to have provided a convalescent home solely for cases of tuberculous cervical adenitis.

RENAISSANCE OF SURGICAL TREATMENT

Of the 800 lymph-nodes of the body 300 lie in the neck. From the clinical, pathological, and operative surgical standpoints it is desirable to divide these cervical lymph-nodes into various groups that include the parotid group. The last is not a strictly anatomical inclusion. In the heyday of cervical extirpations surgeon-anatomists described and illustrated an operation to eradicate all the groups except the one that naturally they would not, nor indeed could, include in a block dissection of the neck. Regional grouping of the cervical nodes, of incidental importance to the surgeon-anatomist in their radical operation, is the lodestar of that small band of surgeons who continued to operate on these cases during the fall of surgical treatment. Regional grouping (fig. 7) will prove a trusty pivot for the pendulum that was unhitched temporarily.

The operative technique should be varied when the patient comes for treatment with skin involvement (Bailey 1945). The broad outline of what I have evolved from an experience of between 1300 and 1500 operations on patients with tuberculous cervical adenitis is summarised in fig. 8.

In the whole of the surgical literature there is not an adequate description of how to deal with each group of cervical nodes. Obviously, if the submental group is alone affected, operative technique will be vastly different from that for, say, the supraclavicular group, the parotid group, or the retropharyngeal group. The descriptions available concern the upper jugular chain, with a few notes on how to deal with the posterior triangle. These are far the commonest situations of tuberculous lymph-nodes suitable for eradication, but 30% of the cases concern other triangles, and many most suitable cases for surgery, unsuitable for other methods, fall into the latter category.

ENVOI

During and since the late war the number of cases of tuberculous cervical adenitis has increased. While we are awaiting the medical millennium many of you will continue to be confronted with the problem of how best to deal with these patients, and especially with those who are bread-winners or who must be educated and rendered fit for the battle of life with as little delay as possible. For those who find themselves in this predicament, I put forward the case for combined efficient operative treatment and reasonable convalescent after-care.

In conclusion, I cannot do better than quote Dr. Dowd, of New York, whose writings on this subject have been a constant inspiration to me: "If operation gives them the best likelihood of a cure, they should have operation; if operation plus another form of treatment is desirable they should have both. If another form of treatment gives quicker and better results, it should be used; but the patient should not be allowed to drag on from stage 1 to stage 2, 3, or 4 while such treatment is being tried."

REFERENCES

Allbutt, T. C., Teale, T. P. (1885) Clinical Lectures. London.
Atkinson, E. M. (1936) *Brit. med. J.* ii, 783.
Bailey, H. (1945) *Brit. J. Surg.* **33**, 53.
British Medical Journal (1871) ii, 727.
Dowd, C. N. (1905) *Ann. Surg.* **42**, 49.
— (1908) *Ibid*, **48**, 169.
— (1916) *J. Amer. med. Ass.* **67**, 499.
Moorhead, F. B. (1912) *Dent. Sum.* **32**, 142.
Sutcliffe, W. G. (1903) *Lancet*, ii, 1351.
Treves, F. (1882) Scrofula and its Gland Diseases. London.

". . . In the middle decades of the 19th Century, the cleavage between scientists and practitioners was much greater than in our time. . . . Clerk Maxwell's public comments on Alexander Graham Bell's telephone is a case in point. The physicist reviewing the inventor's work left no doubt in the audience's mind who was top dog in any hierarchy that mattered. Even Pasteur could be regarded by his contemporaries as a promising young chemist gone astray. Like Humphry Davy before him, he was working for the doctors; but, unlike Davy, he came into this sad occupation not as piece of youthful folly but as a mature man. . . . The pendulum has now swung very far to the other side—too far, some scientists would say. . . . Is there danger that in the present fusion of pure and applied science the tradition of the investigator interested *only* in the conceptual schemes will be so weakened as to disappear? I am inclined to think so."—JAMES B. CONANT, *Science*, Jan. 23, p. 77.

THE ESSENTIAL PATHOLOGY OF KWASHIORKOR

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THE nutritional disorder widespread in Africa and variously named kwashiorkor (Williams 1933, 1935), infantile pellagra (Trowell 1937), and malignant malnutrition (Trowell 1944) has attracted considerable interest since the discovery of the rôle of specific factors in the prevention of liver disease induced by dietary deficiencies (Witts 1947). But, apart from a short description of the liver in this condition by Smith (1943) and the work of Gillman and Gillman (1945a and b) in South Africa, little has been written about the pathology, and this has considerably hampered investigations.

Further, as shown below, the condition seen in Johannesburg is rather different from that seen in Uganda; in particular, in Uganda no evidence of any derangement of iron metabolism has been found, iron pigment is never abundant, and the condition never proceeds to hæmochromatosis. Indeed no case of hæmochromatosis has ever been found at necropsy at the Mulago Hospital, Kampala.

Kwashiorkor occurs in both children and adults and in both sexes. Detailed descriptions of the clinical features have been given by Trowell (1940) and Trowell and Muwazi (1945a and b) based on cases seen in this hospital. The main features of the condition are anæmia, œdema, pot-belly, skin depigmentation, and various other skin lesions. The hair is altered in colour and texture, becoming soft, scanty, and straight, and varying from reddish-brown to flaxen or even white. Radiologically a deficiency bowel pattern is found (Brown and Trowell 1944). There are striking alterations in the plasma-proteins and a reversed albumin-globulin ratio. The stools are bulky and soft and contain considerable quantities of undigested food.

This is the picture shown most typically in childhood but also in adults in an acute phase of kwashiorkor. Recovery from this is so slow that it appears likely that internal organs and the internal metabolism are permanently altered. The clinical conception has therefore been widened and has come to include patients in this late phase with but few signs. These people are thin and weak, with straight soft depigmented hair, and their stools contain undigested food. Anæmia and œdema are usually not severe, but at any stage a shortage of food or an acute infection may throw them back into an acute phase.

Both primary and secondary forms of kwashiorkor exist, and any infection, notably tuberculosis, may cause kwashiorkor to arise, even in a previously moderately well-nourished African. This paper deals only with primary kwashiorkor. The only infestations in this series were malaria and ankylostomiasis, except for one patient with a mild amœbiasis and two with ascariasis.

MATERIAL

All the cases were diagnosed as typical kwashiorkor by Dr. H. C. Trowell, and the diagnosis appeared entirely justified by the clinical history and the biopsy and necropsy findings. Liver-biopsy specimens were studied from 24 children and 10 adults. Of these, 7 came to necropsy (4 children, 3 adults). In several cases serial biopsies were studied in connexion with the investigations of the glucose-glycogen conversion (Holmes and Trowell 1948). A further 9 adults and 8 children, on whom no biopsy examinations were performed, were studied at necropsy. They represented thirteen tribes from a wide area of East Africa and Central Africa, but most came from Uganda, whose people are regarded as comparatively well nourished.

The biopsies were carried out by Dr. Trowell, using his own modification of the Gillmans' biopsy apparatus. The liver was approached anteriorly via the xiphisternal notch. The percentage of failures was negligible, and no deaths resulted. The liver threads were expelled into 4% formol alcohol and embedded in paraffin, and serial sections were cut. Frozen sections could not be obtained, since no freezing microtome was available. The sections were stained with hæmatoxylin and eosin, Goldner's (1938) modification of Masson's trichrome stain; reticulum fibres were impregnated with silver by Wilder's (1935) method; and iron pigment was searched for by Gomori's method (1936). In the early stages of the investigation Best's carmine was used to demonstrate glycogen granules; but, as the results were poor and a chemical method for the estimation of glycogen in liver threads was developed (Holmes and Trowell 1948), this method was given up. Necropsy material was fixed in 10% formol saline. Unfortunately no photomicrographic apparatus was available; hence the findings cannot be illustrated.

The results showed that in all these cases a similar process was going on, though at various stages in the disease various histological lesions were found. The same lesions were found both by biopsy and at necropsy, and in no case did the biopsy and necropsy findings differ. The cases are divided into four groups as follows:

Group	*Age (years)*	*Biopsy only*	*Biopsy and necropsy*	*Necropsy only*
I ..	Under 5	14	2	8
II ..	5–10	6	1	0
III ..	10–20	5	1	1
IV ..	Over 20	2	2	8
	Totals ..	27	6	17

The smallness of this series is due not to the lack of cases of kwashiorkor but to the necessity of eliminating cases complicated by other diseases.

CHANGES IN THE LIVER

Group I (under 5 years old)

In this group 10 of the children biopsied were Ganda, as were 7 of those who came to necropsy. In fact this group consisted of local residents. The youngest was aged six months, but this child was heavily infected with malaria. There were 3 aged just one year, and 1 of these was free from all parasites. Out of the whole group only 6 were free from both protozoal and helminthic infestation.

The same process was going on in the liver in every case. The earliest lesion appeared to be an accumulation of small fat droplets in the cells at the periphery of the lobule. The droplets distend the cells and compress the sinusoids. If the condition continues, fat appears in the mid-zonal cells and finally in the centrolobular areas till eventually the liver becomes so fatty that no normal liver cell is seen and it becomes almost unrecognisable. There is no sinusoidal dilatation, and no iron pigment is present. Malaria pigment may or may not be present. It is found in the liver cells and in Kupffer's cells, which lie flattened along the compressed sinusoids, and tends to collect in the peripheral part of the lobule lying free in the sinusoids and in the portal areas. After the appearance of the fat, lymphocytes and occasionally eosinophils appear in the portal areas and in the peripheral portions of the sinusoids; the reticulum fibres in the portal areas and surrounding the peripheral liver cells reduplicate, and fibrous tissue is laid down along the lobule periphery and, extending down the sinusoids from the periphery, surrounds and strangles the peripheral liver cells. These cells disappear, and the fibrosis increases and extends still further into the lobules. As a result of this the liver at necropsy is enlarged, firmer than normal, and light yellow, orange, or buff, and the liver threads removed at necropsy have the same colour and are so infiltrated with fat that they tend to float in the fixative.

Should the condition improve, resolution begins in the centrolobular region round the central vein; the fat droplets become smaller and disappear, and the cytoplasm of the liver cells free of fat becomes firmer and stains more intensely with eosin. The fat retreats from the centre of the lobule through the mid-zonal region to the periphery, and the peripheral fat is the last to disappear. If improvement continues, this disappears too, and finally the liver lobules are left with accumulations of fibrous tissue in the portal areas apparent as a fine patchy monolobular cirrhosis and with accumulations of lymphocytes at various points round the periphery of the lobules. This combination of a patchy monolobular fibrosis with round-cell accumulations is the hallmark of kwashiorkor and persists throughout life.

Vint (1931) recognised this condition as being present in nearly every African liver, and in more than 1000 necropsy specimens I have found it in every case save in a few very young children. Vint attributed this condition to parasitic infestation, but this seems to be erroneous. It causes the striking histological difference between African and European; for, whereas in a European, even in Uganda, the liver shows little evidence of lobulation and one infers that between one central vein and the next there is a sinusoidal watershed, in the African liver, on the other hand, it is always easy to see the lobular outlines drawn in by the fibrous tissue and lymphocytic infiltrations.

The fat distribution is so constant that when, in a case diagnosed as primary kwashiorkor in a child under the age of five years, the usual fibrosis and cell accumulations are seen and the fat is not peripheral but mid-zonal, centrolobular, or in irregular focal areas, some serious complication is to be suspected, and the condition is probably secondary kwashiorkor.

The process has been described as if it could be divided into stages; but, though the fat accumulation is the first to appear, fat-accumulation, round-cell infiltration, and fibrosis go on together. Thus the usual picture found is of moderate periportal and peripheral pericellular fibrosis with strangulation of the peripheral liver cells, lymphocytic collections in the portal areas, and fat in the peripheral cells and extending inwards to a varying depth.

Further, in the above description the changes accompanying improvement are described as the retreat of fat from the centre. Most children who die do so with a fatty liver, but in those who survive there is a gradual disappearance of fat from the liver without any clinical improvement. Thus those children who survive pass into the picture described for groups II and III. This change is not due to increasing age but to the duration of the disease. Adult Africans subject to a malnutritional phase develop the same changes in the liver as do the small children, and a fresh kwashiorkor fibrosis may develop on top of a mild kwashiorkor fibrosis, the legacy of a childhood malnutritional phase.

Group II (aged 5–10 years)

This group contained 2 children between five and six years of age. These showed the same changes as described in group I, save that the fibrosis was more severe. In the remaining 5 children, aged six to ten years, this process had gone further and the condition was very different: 3 of these showed no fat droplets whatsoever in the liver biopsy; and 2 showed only a very slight amount of fat diffused through the lobule without any large droplets in the peripheral region. The fibrosis in all cases was severe, being least in the youngest and becoming more apparent in the older children until in the eldest, aged ten years, it had reached the stage of a well-marked monolobular cirrhosis. Only 1 of these children had a malarial infestation and he had mild amœbiasis also; 4 of the others had mild ankylostomiasis.

The cases in this group are important because they show that the fatty liver so prominent in group I is not the essential lesion in kwashiorkor, and that very severe and typical kwashiorkor can exist without any fat in the liver. They also show that from kwashiorkor there can develop a monolobular cirrhosis. Late cases of this pure monolobular cirrhosis are found at Mulago, but not very often, and present an interesting picture.

The liver is light buff or stone colour, its size is not much different from normal, and it is extremely hard to cut. On section a pure monolobular cirrhosis without lobular collapse or hyperplasia is seen, the liver cells are very fatty, there is little distortion of the lobular architecture, and there is an almost complete absence of bile retention. It has been stated that it has not been seen very often. This seems, so far as present investigations go, to be due to the fact that, in the later stages of the development of kwashiorkor fibrosis, focal or even large-scale necroses are seen with lobular collapse and regenerative hyperplasia, and the smooth monolobular cirrhosis has superimposed upon it a further fibrosis, the final result being a mixed type of cirrhosis. This condition was also recognised by Vint (1931) and for ease of reference is called Vint's cirrhosis. These changes appear to be similar to those described in animals by Himsworth and Glynn (1944), which are referred to for convenience as Himsworth's lesions. None of the cases in this series showed traces of these Himsworth's lesions, save in 2 cases in group II and 1 in group IV, in which small areas of necrosis were found. The lesions again do not seem to be essential lesions in the pathogenesis of kwashiorkor, however much they may complicate the later stages.

Group III (aged 10–20 years)

These showed changes similar to those found in the older group-II children. Fat was either absent (4 cases) or very slight (3 cases). In 1 of the 3 latter cases fat was diffuse throughout the lobule, and in the other 2 there was a slight peripheral accumulation. All showed well-marked fibrosis. In 3 cases there was ankylostomiasis, and 1 of these had malaria also. Only 2 cases came to necropsy.

Thus in these cases also well-marked signs and symptoms of kwashiorkor were not accompanied by fatty livers.

Group IV (over 20 years old)

None of these cases showed evidence of malaria, and only 2 had ankylostomiasis, both being mildly infested. This group could be divided into two subgroups.

Subgroup A consisted chiefly of local residents, and the picture in their livers was similar to that found in groups II and III, there being perilobular and pericellular fibrosis, the fat infiltration being usually negligible.

Subgroup B consisted largely of recent immigrants to Kampala, mostly from Rwanda-Urundi. During their long trek to seek employment in Uganda they often suffer severely from malnutrition and many die en route. The picture found in their livers resembles that of group I: gross fatty infiltration and early fibrosis. The fibrosis is, however, usually more severe than that of group I, probably owing to a recrudescence of a kwashiorkor state in abeyance since childhood.

CHANGES IN THE PANCREAS

The earliest histological changes in the pancreas appear to be atrophy of the acinar cells with a diminution in the numbers of secretory granules. The difficulty of obtaining very fresh necropsy material, particularly in the tropics, makes it difficult to decide if there are islet changes.

The next stage is more definite: the cells undergo hyaline changes; the tubules are dilated; and a peri-acinar, intratubular, and perilobular fibrosis begins. There is also a periductal fibrosis. Iron pigment is not seen. The effect is that the acinar tissue is broken up by the fibrosis, and the lobular outlines are shown up by dense bands of fibrous tissue. In advanced cases the acinar tissue disappears over wide areas of the pancreas; the islets are affected, and some seem to disappear.

In the early stages it seems as if there are islet hypertrophy and possibly hyperplasia, but it is difficult to be certain about this. The process may stop at any stage, and, governed by unknown factors, may be fast or slow. In a child aged 5½ years the process was very advanced; in a man of 24 the pancreas had been almost completely superseded by fibrous tissue.

Though a small cyst was found in 1 case, in no case has any ductal metaplasia been seen, and the condition does not appear to be related to the Anderson-Farber syndrome.

The late results of the pancreatic fibrosis appear to be as lethal as, and more far-reaching in effect than, the hepatic fibrosis. Both hepatic and pancreatic carcinomas are common at Mulago (Davies 1948); and, on the analogy of the Anderson-Farber syndrome, pancreatic insufficiency may be a factor in the high African death-rate from respiratory infections (Davies 1947). It is also possible that some of the patients dying at Mulago in status epilepticus unrelieved by the usual remedies may have had hyperinsulinæmia.

CHANGES IN THE KIDNEY

The kidneys have been examined in 20 cases; in 11 of them lesions were found corresponding to those first described by Hennessey (1938) and called by him "proliferative glomerulitis." This was well marked even in young children. The most striking feature of the condition is the glomerular hyalinisation. This is extremely common, being found in 176 kidneys out of 353 removed at necropsy. I cannot agree fully with the description of this lesion as given by Hennessey (1938). The proliferative hyperplasia described as taking place in the capsular epithelium appears to me to be a metaplastic change by which the flattened epithelial cells become more cubical, especially at the exit into the first convoluted tubule. Crescent formations do not appear to be an essential feature, and the hyalinisation appears to start at the base of the glomerular tuft rather than in the centre. Pericapsular fibrosis is common. The condition bears a distinct resemblance to the renal lesions accompanying portal cirrhosis as described by Baxter and Ashworth (1946), and what may be an extreme example of the capsular epithelial metaplasia has been reported by Eisen (1946). Rolleston and McNee (1929) point out that pancreatic changes and renal changes are commonly found in patients dying of portal cirrhosis, and that in the late stages of Hanot's cirrhosis a portal cirrhosis supervenes. These remarks are interesting in connexion with the later stages of kwashiorkor fibrosis.

DISCUSSION OF FINDINGS

The evidence so far presented shows that the relationship between the clinical state of kwashiorkor and fatty infiltration of the liver of a characteristic pattern is not constant: acute kwashiorkor, both in children and adults, is associated with fatty infiltration of the liver of a characteristic pattern; but in the later stages of the disease fat may be entirely absent from the liver. It follows that kwashiorkor cannot be due merely to a nutritional deficiency causing fat accumulation, and that this is only epiphenomenal. The cause of this fat-lesion and the essential pathology of kwashiorkor, if such exists, must be looked for elsewhere.

In the early stages of this investigation attention was concentrated on the liver; at the same time interest was aroused by patients presenting as diabetics in hyperglycæmic coma. These were treated in the orthodox way with insulin injections. They passed into hypoglycæmic coma, and from this state they could not be roused, even after large doses of intravenous glucose. At necropsy the pancreas was almost completely fibrosed: little or no acinar tissue could be seen; and the islets were embedded in masses of fibrous tissue. As a result of this finding, sections of the pancreas were removed as a routine at all necropsies, and it soon became apparent that pancreatic fibrosis was extremely common at necropsy, some degree of fibrosis being found in 103 of 165 pancreases examined.

Remembering that fatty infiltration of the liver had been described in depancreatised dogs kept alive with diet and insulin (Witts 1947), we turned our attention to the pancreas in kwashiorkor. Biopsy was, unfortunately, impossible, but at necropsy close attention was paid to the pancreas. Since then, of the 13 patients with kwashiorkor coming to necropsy, every one, however young, has shown severe pancreatic lesions, independently of fatty infiltration of the liver.

It seems therefore reasonable to assume that pancreatic fibrosis is a kwashiorkor lesion, and that its frequent occurrence in Africans is compatible with the known fact that every African goes through a kwashiorkor phase in childhood (Trowell and Muwazi 1945a), as shown by the constant finding of kwashiorkor hepatic fibrosis and cellular infiltrations. Upon this assumption and by correlating the findings both in kwashiorkor and in the general necropsy cases, a coherent account of the changes in the pancreas appeared to be possible.

PRESENT CONCEPTION OF KWASHIORKOR

There is much in the clinical picture of kwashiorkor to suggest that it is initially a pancreatic deficiency disease due to malnutrition. The pot-belly (almost always present in African children), the steatorrhœa, the failure to digest meat and starch, and the fatty infiltration of the liver all point to a primary pancreatic disease. I do not intend to discuss the possible dietetic deficiencies responsible or the possible relation to sprue, cœliac disease, or hæmachromatosis and pellagrous lesions as seen in South Africa; but it does seem possible to put forward a tentative theory and description of kwashiorkor.

For the first few months after birth the breast-fed African child thrives moderately well, though he gets a poor start owing to maternal nutritional deficiencies (Trowell 1946). Next ensues a period of malnutrition, possibly intensified by malaria, which causes pancreatic deficiency, probably biochemical at first, with failure of exocrine secretion and manifested by inability to digest food properly. It is also manifested by fatty infiltration of the liver with fibrosis and round-cell accumulation. In severe cases the liver is grossly fatty; at necropsy this is the most striking lesion and overshadows the more important lesions in the pancreas. But, if the process continues and the patient survives, the body adjusts itself biochemically and the fat disappears from the liver, leaving the fibrosis and the cell accumulations as evidence of its passing. While this goes on the kidney too is being damaged.

What happens after this is as yet uncertain, but it appears that the damage to these organs may continue, separately or together, leading to monolobular hepatic cirrhosis, pancreatic fibrosis, or renal failure from proliferative glomerulitis. Upon the monolobular cirrhosis may supervene a dietetic necrosis; hence the final picture is that of combined monolobular and multilobular cirrhosis.

RESPONSE TO TREATMENT

The response of kwashiorkor to treatment with various specific nutritional factors will be discussed elsewhere. The changes taking place in the liver have been described, and the retreat of fat from the liver cells has been seen under treatment; but this change does not necessarily betoken clinical improvement, since after the initial fatty infiltration the fat will disappear, if the process goes on long enough, without clinical improvement. One

curious finding may, however, be mentioned: almost the first sign of clinical improvement is a swelling of the parotid and other salivary glands, at first thought to be mumps. In view of the known similarity of the pancreas and the salivary glands, perhaps some such change takes place in the pancreas, since the next manifestation of improvement is an alteration in the stools, which soon contain no undigested food. Enlargement of the parotid glands is common in Uganda, which suggests that it may be linked with dietary deficiencies.

The fact that a fatty liver is not invariable in kwashiorkor, and is only a manifestation of pancreatic inefficiency, suggests that the therapeutic attack should be directed towards the pancreas and preferably before the liver is very fatty; since, when the fat does accumulate, it is because the pancreas is seriously damaged. The next step is clearly to investigate further the pancreatic derangement.

SUMMARY

The clinical features of kwashiorkor are briefly discussed.

The biopsy and necropsy findings suggest that in all cases of primary kwashiorkor the essential pathology is the same.

It is suggested that kwashiorkor is essentially a pancreatic disorder due to malnutrition and possibly intensified by malaria; that in consequence of the pancreatic malfunction the liver becomes infiltrated with fat; but that, if the patient survives, the fat disappears from the liver without clinical improvement.

The late results of kwashiorkor are cirrhosis of the liver, pancreatic cirrhosis, and a form of nephritis.

Mild forms of these conditions are so constantly found at necropsy that almost every African child must go through a kwashiorkor phase.

No attempt has been made to discuss the specific ætiology or to compare it with other conditions.

This work has been carried out at Mulago Hospital in conjunction with Dr. H. C. Trowell and Dr. Eric Holmes. My thanks are due to Makerere College for apparatus and materials and for the technical assistance of Mr. K. D. S. Matovu; and to Prof. H. P. Himsworth, Drs. T. and J. Gillman, and Dr. B. J. P. Becker for their help.

REFERENCES

Baxter, J. H., Ashworth, C. T. (1946) *Arch. Path.* **41**, 476.
Brown, J. S., Trowell, H. C. (1944) *Lancet*, ii, 812.
Davies, J. N. P. (1947) *E. Afr. med. J.* **24**, 289.
— (1948) *Ibid* (in the press).
Elsen, H. N. (1946) *Amer. J. Path.* **22**, 597.
Gillman, T., Gillman, J. (1945a) *J. Amer. med. Ass.* **129**, 12.
— — (1945b) *Arch. Path.* **40**, 239.
Goldner, J. (1938) *Amer. J. Path.* **14**, 237.
Gomori, G. (1936) *Ibid*, **12**, 655.
Hennessey, R. S. F. (1938) *E. Afr. med. J.* **15**, 329.
Himsworth, H. P., Glynn, L. E. (1944) *Lancet*, i, 457.
Holmes, E., Trowell, H. C. (1948) *Ibid* (in the press).
Rolleston, Sir H., McNee, J. W. (1929) Disease of the Liver, Gall-bladder and Bile Ducts. London.
Smith, E. C. (1943) *Trans. R. Soc. trop. Med. Hyg.* **36**, 287.
Trowell, H. C. (1937) *Arch. Dis. Childh.* **12**, 193.
— (1940) *Trans. R. Soc. trop. Med. Hyg.* **33**, 389.
— (1944) *Clin Proc.* **3**, 381.
— (1946) *E. Afr. med. J.* **23**, 34.
— Muwazi, E. M. K. (1945a) *Arch. Dis. Childh.* **20**, 110.
— — (1945b) *Trans. R. Soc. trop. Med. Hyg.* **39**, 229.
Vint, F. W. (1931) *E. Afr. med. J.* **7**, 349.
Wilder, H. C. (1935) *Amer. J. Path.* **11**, 817.
Williams, C. D. (1933) *Arch. Dis. Childh.* **8**, 423.
— (1935) *Lancet*, ii, 1151.
Witts, L. J. (1947) *Brit. med. J.* i, 1.

"... Research-workers tend to present their results as if they were the outcome of systematic and orderly progression. This fosters the tendency to overestimate the importance of planning in scientific research. This same tendency exists in all fields of human activity, and in retrospect each of us is apt to regard his actions and thought processes as rational. We readily deceive ourselves that our convictions are the logical consequence of a continuous and reasonable train of thought."—Dr. N. HOWARD-JONES, *Wien. klin. Wschr.* 1947, **59**, 837, 857.

NOSE AND SKIN CARRIAGE OF STAPHYLOCOCCUS AUREUS IN PATIENTS RECEIVING PENICILLIN

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THE introduction of the coagulase test (Cruickshank 1937, Neter 1937) for differentiating staphylococci thought to be potentially pathogenic has stimulated much work designed to elucidate their importance and distribution.

Staph. aureus, the name used here to designate a gram-positive coccus coagulating human plasma, is now firmly established as an organism which, in contrast to other staphylococci, often forms well-defined toxins and enzymes (Chapman et al. 1934, Christie et al. 1946, Cowan 1938, Schwabacher et al. 1945), is highly pathogenic to the rabbit, and is characterised by a specific polysaccharide complex (Cowan 1938, Julianelle and Wieghard 1935). This organism is therefore distinct from the commoner gram-positive cocci which colonise the nose and skin. The frequent isolation of *Staph. aureus* (coagulase-positive staphylococci) in pure culture from many purulent lesions, including osteomyelitis (Fairbrother 1940), is strong evidence of the pathogenicity of this organism to man.

We have at present no satisfactory proof of the converse fact, often implicitly accepted, that all coagulase-positive staphylococci are potential pathogens to man; nor do we know the pathological sequelæ of local multiplication of this organism on broken skin surfaces (Miles 1944, Williams and Miles, in the press). But the case for most strains of *Staph. aureus* being potentially pathogenic is, in our opinion, strong enough to justify further investigation of the distribution and rôle of this organism on the human skin.

The distribution of *Staph. aureus* in healthy people has been studied in detail. Swabbing large and varying samples of the adult population has repeatedly revealed a high incidence of this organism in the nose (McFarlan 1938). Many people carry the organism persistently for many weeks. It is found also on the normal skin, especially on the back of the wrist, in a smaller, but still high, proportion of persons. More "skin-positive" persons show nasal carriage than do "skin-negatives" (Gillespie et al. 1939, Martin 1942, Miles et al. 1944). Typing of the staphylococci isolated from the nose and skin of one person usually shows them to be of common origin (Fisk and Mordvin 1944, Williams 1946). These facts and similar evidence have led to the suggestion that staphylococci found on normal skin are usually derived from the nose, probably by direct contact. We have set out to test this hypothesis by experiment. If this hypothesis is correct, abolition of nasal carriage for a period might be expected to reduce skin carriage.

The technique adopted was the local application of penicillin to the nose of a selected group of hospital patients with normal skins who had been observed long enough to know that they were persistently carrying coagulase-positive staphylococci in the nose. Having made sure that this application was effective in a few patients, we observed the nose and skin carriage-rates of further patients. To demonstrate that the effects discovered on the skin during this therapy could not be

* In receipt of full-time grant from the Medical Research Council while working for their committee to advise on the medical and surgical problems of deafness.

attributed to absorption of penicillin into the blood-stream (Meads et al. 1945), we present data obtained from patients undergoing systemic treatment.

This work has confirmed the importance of the nose as the source of skin staphylococci in most cases. A further definition of the exact nasal site has also been made by confirming the relative sterility of the mucosa-lined cavities of the nasal fossæ (Thomson and Hewlett 1895).

This study has concentrated on the specific problem of the dependence of skin carriage on nasal carriage in persons with normal skins. The results confirm the advisability of combined nasal and skin treatment in some cases of skin infection, as suggested for sycosis barbæ (Fleming 1946, Burrows et al. 1945) and pemphigus neonatorum (Knott and Blaikley 1944, Williams et al. 1947). The practical applications have not been further explored here.

EXPERIMENT WITH INTRANASAL PENICILLIN

Selection of Patients.—All the results described here are from patients in one male surgical ward, which was visited daily for about eight months during 1946. From May to November intranasal penicillin was given to all available "persistent carriers," a term we apply to patients whose first two nasal swabs yield *Staph. aureus* on the direct plate. The patients so selected comprise about 1 in 5 of all admissions and, in the absence of intranasal penicillin, carry persistently for the ensuing 2 or 3 weeks at least.

Methods of Giving Intranasal Penicillin.—This was the responsibility of the nursing staff. Each patient received a 10-day course of 50,000–100,000 units of penicillin, roughly estimated by measuring every 7 or 10 days the volume or weight of the preparation used. The spray, given to the first 10 patients, was applied thrice daily in a concentration of 12,500 units/ml. from an atomiser, whose removable sterile glass end was placed just inside each nostril. The cream, given to the next 11 patients, was applied twice daily in a concentration of 100,000 units per g. in a 'Lanette wax' base, small sterile swabs being used as applicators.

Bacteriological Technique.—Moistened swabs were taken daily from each patient, one from the two nostrils and one from the skin. The skin swab was omitted from the first 6 patients receiving intranasal penicillin but introduced immediately it was clear that, since the penicillin was reducing *Staph. aureus* nasal carriage, parallel skin results would be of interest. These swabs were taken by thoroughly rubbing an area of about 1 in. in diameter on the back of the wrist (the left unless there was an injury of that arm or hand).

The swabs were inoculated on to horse blood agar plates incubated aerobically, and also into broth tubes incubated anaerobically before subculture (Williams and Miles 1945). All gram-positive cocci coagulating human plasma (Williams and Harper 1946) were termed "*Staph. aureus.*" Enough penicillinase (Harper 1943) was added to the broth for small test inocula of *Staph. aureus* to multiply in 24 hours in spite of being mixed with 100 units/ml. of penicillin at the time of inoculation. Similarly, enough penicillinase was added to the solid media to neutralise 30 units/ml. of penicillin.

These concentrations appeared adequate in that patients receiving intranasal penicillin continued to yield *Staph. aureus* at least during the first day or so of treatment. To check this point, we examined specially one or two nasal swabs from patients whose noses had ceased to yield *Staph. aureus*, but who were still receiving intranasal penicillin. These swabs, thoroughly rubbed up in the routine penicillinase broth, did not yield enough penicillin to inhibit the growth of a small inoculum (about 500 viable organisms) of sensitive staphylococci.

A single *Staph. aureus* colony from each positive swab was tested for its sensitivity to penicillin; 10% broth saline suspensions of staphylococci, using inocula of 20–500 viable organisms from the 24-hour broth culture, were spread on nutrient agar plates containing 0·05–0·2 unit/ml. of penicillin. Staphylococci showing any resistance were tested for penicillinase production by the Heatley cylinder method (Duthie 1944) after incubation of a 24-hour broth culture with 2 units of penicillin/ml. for 6 hours.

Phage (Wilson and Atkinson 1945) and serological typing of over 100 strains of *Staph. aureus* were kindly undertaken by Dr. V. D. Allison, of the Staphylococcal Reference Laboratory, Colindale, London. The aim was to compare nose, skin, and, if available, wound types at the beginning and end of penicillin therapy.

TABLE II—20 PERSISTENT CARRIERS RECEIVING NO NASAL PENICILLIN, SHOWING THE PROPORTION OF SWABS YIELDING *Staph. aureus*

Days (Day 1 = day of first swab)	Nose		Skin	
	Swabs	Positive	Swabs	Positive
1 to 5	66	62 (*93%*)	63	38 (*60%*)
6 to 10	47	40 (*85%*)	44	24 (*54%*)
11 to 15	25	23 (*92%*)	23	10 } (*58%*)
16 to 25	13	11 (*85%*)	13	11 }
Total ..	151	136 (*90·1%*)	143	83 (*58·0%*)

Nose Results

All available "persistent" nasal carriers were swabbed daily. The effect of intranasal penicillin may therefore be recorded in terms of any change in the proportion of nasal swabs which yielded *Staph. aureus* in 5-day periods before, during, and after treatment. In a group of 21 patients (see table I) the nasal carriage-rate fell from 97% before treatment to 67%

TABLE I—21 PERSISTENT CARRIERS TREATED WITH INTRANASAL PENICILLIN FOR TEN DAYS, SHOWING PROPORTION OF SWABS YIELDING *Staph. aureus*

Days (Day 1 = first day of nasal penicillin)	Nose						Skin	
	Penicillin spray (10 patients)		Penicillin cream (11 patients)		Total (21 patients)		Total (15 patients)	
	Swabs	Positive	Swabs	Positive	Swabs	Positive	Swabs	Positive
−10 to −6	9	9 (*100%*)	26	25 (*96%*)	35	34 (*97%*)	28	16 (*57%*)
−5 to −1	17	17 (*100%*)	32	29 (*91%*)	49	46 (*94%*)	39	25 (*64%*)
1 to 5	39	25 (*64%*)ss	39	27 (*69%*)ss	78	52 (*67%*)ss	54	22 (*41%*)!s
6 to 10	26	7 (*27%*)ss	38	17 (*45%*)ss	64	24 (*37%*)ss	52	20 (*38%*)s
11 to 15	30	10 (*33%*)ss	28	16 (*57%*)ss	58	26 (*45%*)ss	46	21 (*46%*)
Total 1 to 15	95	42 (*44%*)ss	105	60 (*57%*)ss	200	102 (*51%*)ss	152	63 (*41%*)

Each percentage shown in the table has been compared with the percentage found for the same site among persistent carriers receiving no chemotherapy (see table II: nose, 90·1%, skin, 58·0%).
ss, probability of 1 in 140 or less of the difference being a chance event; s, probability of 1 in 80 of the difference being a chance event; !s, probability of 1 in 36 of the difference being a chance event.

during the first 5 days and to 37% during the last 5 days of intranasal penicillin. In contrast to these findings the 20 untreated patients (table II) had a nasal carriage-rate which did not vary with stay in hospital, and was not significantly different from the intranasal-penicillin series before treatment was started. Comparing the average for the untreated patients with the carriage-rates during intranasal-penicillin therapy, it will be seen (table I) that the differences are significant to a degree extremely unlikely to be due to chance alone. Thus both penicillin spray and cream significantly reduced the nasal carriage-rate of *Staph. aureus*.

Unfortunately the patients did not stay in hospital long enough for us to collect adequate data on the rate at which *Staph. aureus* reappeared in their noses after penicillin was stopped. Table I shows the findings for the first 5 days after discontinuing penicillin (days 11–15).

The effect of a 10-day course of intranasal penicillin on the individual patient may be expressed in terms of his last 5 nose swabs. We have termed a success any patient who had at least 3 of these 5 swabs negative. Thirteen were successes, six were failures, and two could not be classified because they had less than 5 swabs during treatment before discharge from the ward.

We have compared the successes and failures in terms of the following data: nose and skin swab results before treatment; middle-fossa swab result; phage typing on nose and skin strains of *Staph. aureus* at the beginning and end of treatment; penicillin-sensitivity tests on single strains from most positive swabs; and the clinical records of age, diagnosis, possible focus of sepsis, and nasal physical signs. The numbers are small, but there is no apparent difference between successes and failures apart from the finding that two failures (but no success) yielded an appreciable number of penicillin-resistant strains of *Staph. aureus*.

One of the nasal failures (fig. 1, no. 9) yielded a resistant strain of *Staph. aureus* for the first time on the 8th day of intranasal penicillin, which was also the 9th day of systemic penicillin. Thereafter 3 of the 5 positive swabs yielded strains of *Staph. aureus* resistant to at least 0·1 unit/ml. of penicillin but not producing penicillinase. Another failure (fig. 1, no. 12) yielded some partially resistant *Staph. aureus* during treatment.

Theoretical reasons for the failures are discussed below. The successes are of particular interest when considered in relation to the parallel findings on the skin.

Skin Results

The proportion of skin swabs yielding *Staph. aureus* during the different 5-day periods has been shown in parallel with the nose results in table I. The skin carriage-rate of 57% before treatment fell to 41% during the first 5 days and to 38% during the second 5 days of nasal therapy. These results may be compared with the over-all average of 58% for the skins of untreated patients (table II).

Examination of the nasal failures as defined above shows that these patients continued to carry *Staph. aureus* on the skin (figs. 1 and 2). Their swab results have therefore obscured the fall in carriage of the other patients. Taken alone, the intranasal-penicillin successes show a considerable drop in skin carriage (figs. 1 and 2) during intranasal-penicillin therapy. These results are obviously not comparable with the larger series, but the percentage of swabs yielding *Staph. aureus* before treatment started (57%) is very significantly different from the percentage (10%) during the last 5 days of intranasal penicillin (difference = 47, S.E. of difference = 12).

TABLE III—15 PATIENTS TREATED WITH SYSTEMIC PENICILLIN COMPARED WITH 20 RECEIVING NO CHEMOTHERAPY, SHOWING THE PROPORTION OF SWABS YIELDING *Staph. aureus*

Site swabbed	Days*	Intramuscular penicillin (15 patients)		No chemotherapy (20 patients)	
		Swabs	Positive	Swabs	Positive
Nose	1 to 5	51	25 (49%)	53	25 (47%)
	6 to 10	43	23 (54%)	68	42 (62%)
	11 to 15	24	10 (42%)	41	26 (63%)
Skin	1 to 5	51	13 (26%)	53	16 (30%)
	6 to 10	43	11 (26%)	68	26 (38%)
	11 to 15	24	5 (21%)	41	11 (27%)

* Day 1, for persons receiving chemotherapy = 1st day of treatment.
" " not receiving " = day of admission.

Comparing the penicillin with the no-chemotherapy group, fourfold tables were made for each 5-day period, first for nose and then for skin swabs. Using the χ^2 test, there was in no instance any significant difference between penicillin and control groups.

TABLE IV—NASAL VESTIBULE AND MIDDLE-FOSSA SWABS FROM PERSISTENT CARRIERS, SHOWING THE PROPORTION OF INITIAL SWABS YIELDING *Staph. aureus*

Site	Swab result	
	No. of patients	No. positive
Vestibule	34	26 (76%)
Middle fossa ..	34	11 (32%)

Difference between the two percentages = 42. S.E./difference = 11.

We consider that these experimental results may be taken as strong evidence that in 8 patients successfully treated with intranasal penicillin the skin of the wrist had been directly contaminated with *Staph. aureus* from the nose.

Phage typing demonstrated that in 6 of these 8 patients the strains of *Staph. aureus* first examined from nose and skin were the same or could be the same. One patient had no skin strain examined. From the other patient (fig. 1, no. 5) at least four different types were isolated from nose and skin. The first pair were different; the pair on the seventh day of intranasal penicillin were alike. The numbers are extremely small, but the findings from the 8 patients are of the order to be expected from pairs of sites one of which is being contaminated by the other.

SYSTEMIC PENICILLIN

Some of the persistent carriers, including 3 nasal successes, received systemic penicillin some time during their stay in hospital. It was theoretically possible that the blood-penicillin level secured with systemic or intranasal penicillin might have contributed to the reduction of *Staph. aureus* on nose or skin. To prove that the blood-penicillin level attained had no such effect, we describe some of the results of a 3-month ward survey in which we swabbed all patients receiving any form of chemotherapy. During the second half of the survey period every new admission was included to afford controls.

Table III compares the *Staph. aureus* carriage-rate of all patients (15) who received at least 100,000 units of penicillin daily for at least 4 days and no other chemotherapy with that of all patients (20) who received no chemotherapy at all. Since most patients received their first injection on or before admission, it was impossible to take swabs before treatment. Our experience with intranasal penicillin would lead us to expect any reduction in *Staph. aureus* nasal carriage to begin towards the end of the first 5-day period and to be, at least in part, maintained during the first few days after penicillin therapy ceased. The results show no indication of this. Taking each 5-day period, there is no significant difference between the patients receiving penicillin and the patients who had no chemotherapy. The individual

results of the 4 persistent carriers, who are therefore comparable with the intranasal-penicillin series, are shown in fig. 1.

It is clear that systemic penicillin did not reduce nose or skin *Staph. aureus* carriage under the conditions described above. Therefore the blood-penicillin level attained by any case in the intranasal-penicillin series could not have influenced our skin-carriage findings.

The failure of systemic penicillin to influence nose or skin carriage of *Staph. aureus* was not due to the presence of penicillin-resistant staphylococci, since no organism tested was resistant to more than 0·1 unit/ml. of penicillin. That the failure was probably not due to persistent contamination from outside sources of staphylococci is suggested by the following findings:

(1) At least 4 patients yielded identical phage types of *Staph. aureus* on nose and skin at the beginning and end of their systemic penicillin. Since there were various phage types in the ward at the time, it is unlikely that the identical types were derived from a source outside the patient.

(2) Three patients with some staphylococcal focus of sepsis received intranasal penicillin (fig. 1, nos. 2, 5, and 13). Two of these were nasal successes. At least in these patients, therefore, outside contamination was not obscuring the results.

(3) There were 3 patients who received systemic penicillin and had no staphylococcal focus of sepsis. These patients all showed no fall in nose or skin carriage during their systemic treatment.

Though these findings suggest that our nose and skin results were probably not being vitiated by contamination from wounds, it is important to emphasise that the failure of systemic penicillin was a failure in a surgical ward containing surgical sepsis.

The theoretical possibilities for failure include inadequate dosage and, the more likely reason, the inability of penicillin in the bloodstream to reach the staphylococci in nose and on skin. This is discussed below.

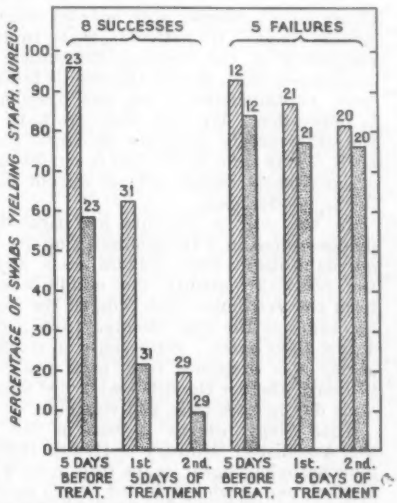

Fig. 2—Effect of intranasal penicillin on nose and skin carriage of *Staph. aureus*: hatched columns, nose swabs; stippled columns, skin swabs; numerals at heads of columns indicate number of swabs on which percentages are based.

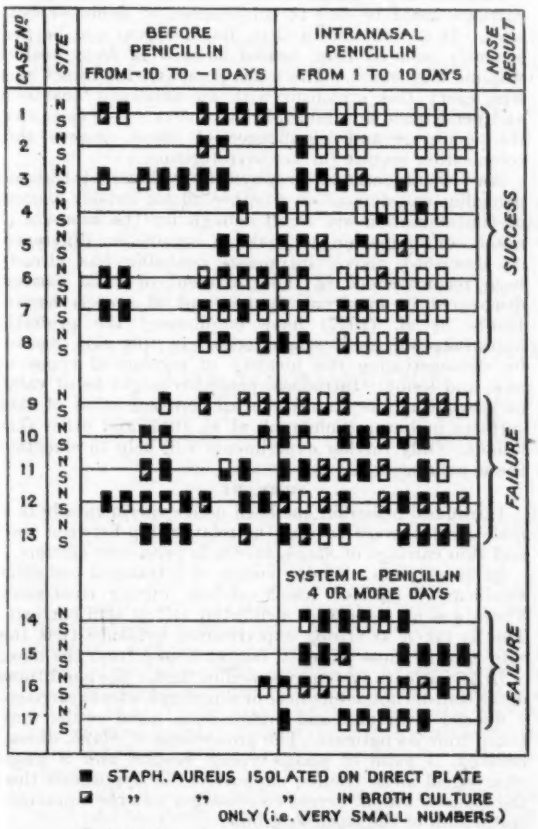

Fig. 1—Daily swab results from 17 persistent carriers receiving penicillin: *Success*, at least 3 of last 5 swabs did not yield *Staph. aureus*; *Failure*, at least 3 of last 5 swabs yielded *Staph. aureus*; N, nasal swab; S, skin swab.

SPECIAL NASAL EXAMINATION AND SWABBING

The question arose whether patients persistently carrying *Staph. aureus* in the vestibule might not have an abnormal architecture of the nasal fossæ or have rhinitis or sinusitis. Clinical examination of the patients in this series showed no excessive frequency of abnormality.

At an early stage of the investigation it was considered that the nasal fossæ were more likely to be infected by the vestibule than the reverse. The direction of the flow of the mucous blanket of the nasal mucosa from before backwards, and the relative paucity of the bacterial flora in the healthy nose (Thomson and Hewlett 1895, Cruickshank and Cruickshank 1931) are suggestive points in this reasoning. The more recent introduction of the coagulase test for identifying potentially pathogenic staphylococci (*Staph. aureus*) made a repetition of the earlier work seem worth while.

Method of Swabbing the Nose

Vestibule.—The squamous region of the vestibule was swabbed under direct vision with the aid of forehead illumination from a head-lamp, moistened swabs being used identical with those necessary for swabbing the fossæ.

Nasal Fossæ.—A broth-moistened swab was used, mounted on wire and guarded by sterile glass tubing 11 cm. long. With forehead illumination and a nasal speculum the swab was inserted (guarded) through the nares; pushed out to sample the anterior extremity of one middle turbinal; and withdrawn into the glass tubing before being removed. There was still, therefore, the risk of contamination of the swab by the extreme tip of the guarded tube which may have touched vibrissæ or vestibular skin. Where both nasal fossæ were narrow, an area on the septum or lateral-fossa wall just in front of the middle turbinal was swabbed. In no case was it necessary to be content with swabbing the inferior turbinal. The swabs, after careful heating of the glass guard, were pushed out and then examined for *Staph. aureus* as described above.

Results

The results of the first pair of vestibule and fossæ swabs taken from all persistent nasal carriers in the ward are shown in table IV. It will be seen that in this

group *Staph. aureus* was isolated less often from the middle fossa (11 patients) than from the squamous epithelium of the vestibule (26 patients). It must be emphasised that, though the middle-fossa swab may have been contaminated from the vestibule, the reverse is impossible. We may therefore have under-estimated the difference in incidence of *Staph. aureus* in the two sites. There is no doubt that in our 34 patients there was a significantly higher carriage-rate in the vestibule than in the middle fossa.

In the only 5 patients investigated, phage typing demonstrated in 3 the similarity of the strains of *Staph. aureus* isolated from middle fossa and vestibule. In the other 2 patients the middle-fossa type differed from the vestibular type isolated the same day but was the same as the type isolated from a crude nose swab a few days later. Since only a single *Staph. aureus* colony was examined from each swab, it is impossible to know whether the different types were present on the same day in both fossa and vestibule.

That *Staph. aureus* is rare in the nasopharynx is well established (Ministry of Health 1930). We therefore took nasopharyngeal swabs from only 9 persistent nasal carriers, one of whom yielded *Staph. aureus*.

These findings emphasise the decreasing frequency of *Staph. aureus* as one passes from nasal vestibule to middle fossa and to nasopharynx, and provide a little evidence in favour of the similarity of types of *Staph. aureus* in middle fossa and vestibule. The data accord with the hypothesis that the squamous epithelium of the vestibule is the site of colonisation of *Staph. aureus*, and that the middle fossa and nasopharynx are contaminated by chance spread from this site.

DISCUSSION

We have used intranasal penicillin experimentally to reduce *Staph. aureus* carriage and noted the associated findings on the skin.

Penicillin cream or spray in a total of 50,000–100,000 units over 10 days reduced detectable nasal *Staph. aureus* carriage in a group of 21 persistent carriers. This accords with the earlier finding of Delafield et al. (1941) that a smaller dosage of penicillin snuff reduced the over-all numbers of staphylococci, and may be compared with the findings in persistent carriers treated by Knott and Blaikley (1946) with a nasal spray. Their findings are, however, expressed in weeks, not days. In most of our patients *Staph. aureus* carriage was reduced from the third day onwards, many swabs being negative even by the more delicate method of broth subculture.

We can offer no evidence to explain the varying degrees of failure. Theoretically, slight variation in the distribution of *Staph. aureus* in the nasal squamous epithelium and its appendages, and contamination from facial skin or skin of the wrist are possibilities which need further investigation.

Systemic penicillin in a daily dosage of 100,000 units failed in 15 surgical patients (12 with possible staphylococcal foci of sepsis) to influence nose or skin carriage of *Staph. aureus*. The failure may be explained on the hypothesis that the site of *Staph. aureus* on the epithelium of skin or nasal vestibule is not reached by any transudate from the capillary blood. In support of this, it has been shown that neither human sweat (Cornbleet et al. 1947) nor cat's tears (Abraham et al. 1941) contain any demonstrable penicillin after systemic injections. The relevant fact is that circulating penicillin could not have caused the fall in nose and skin *Staph. aureus* carriage observed during intranasal-penicillin therapy.

Our experimental finding that reduction of nasal *Staph. aureus* carriage is associated with a significant fall in carriage on wrist skin strongly suggests that, at least in 8 of the 13 persistent nasal carriers, the nose was the predominant source of the *Staph. aureus* on the wrist. This accords with the hypothesis put forward by Miles et al. (1944) that the skin is often contaminated from the nose—a hypothesis based on the observational findings reviewed at the beginning of this paper.

It is difficult in practice to demonstrate whether colonisation or contamination is taking place. Both often take place on the same site, colonisation implying local conditions which allow the multiplication and survival of the organism, and contamination implying reinforcements from some outside source. Given any individual persistently carrying the same phage type of *Staph. aureus* in one site, the deduction must be that either the site is colonised or is being continually contaminated from a second colonised site.

We have repeated the experiments of Thomson and Hewlett (1895) using the more recent coagulase test to identify *Staph. aureus*. The much higher incidence of this organism in the nasal vestibule than in the middle fossa suggests, in the absence of any other probable contaminating source, that the squamous epithelium of the vestibule is the primary site of colonisation.

In the patients successfully treated with intranasal penicillin the changes in skin *Staph. aureus* carriage took place without any known alteration in local skin conditions and followed abruptly and closely the alterations in nasal carriage. The skin findings in these 8 nasal successes could therefore be explained entirely in terms of contamination, nasal contamination predominating.

In the 5 patients in whom intranasal penicillin was a failure, the close association between nose and skin carriage could be due to colonisation of either or both sites. It is well known that *Staph. aureus* can be persistently isolated from healed as well as from healing wounds and burns. There are persons with intact skin who carry this organism with an abnormal heaviness and persistence in a multiplicity of sites. It is clear that the incidence and significance of *Staph. aureus* skin colonisation require further investigation.

Any therapeutic or prophylactic value of intranasal penicillin will depend on whether or not outside sources of contamination are small enough for the removal of nasal contamination to make a significant difference. As described above, intranasal penicillin has already been recommended in the treatment of nasal carriers discovered in maternity homes and of sycosis barbæ. Hobbs et al. (1947) have emphasised the probable importance of nasal staphylococci in this skin disease by demonstrating the identity of serological types in nose and lesion. Intranasal penicillin might be of value in preventing the staphylococcal contamination of skin surfaces in burns (Colebrook et al. 1947) and other skin lesions. Only further experiments will help to elucidate these points.

SUMMARY

Intranasal penicillin has been used experimentally in a male surgical ward to test the relationship between nose and skin carriage of *Staph. aureus* in persistent carriers.

In 21 patients a 10-day course of intranasal penicillin significantly reduced nasal carriage during treatment. There was an associated significant fall in skin carriage. This is taken as strong experimental evidence that the skin was, in these patients, contaminated from the nose.

In 15 patients systemic penicillin, under the conditions described, did not reduce nose or skin *Staph. aureus* carriage.

Special vestibular and middle-fossa nasal swabs were taken from 34 patients. The proportions of *Staph. aureus* isolated, 5 pairs of phage-typing results and 9 nasopharyngeal swab results, supported the hypothesis that the focus of *Staph. aureus* colonisation was the squamous epithelium of the nasal vestibule.

The significance of nose-to-skin contamination by *Staph. aureus* is discussed. Intranasal penicillin may effectively reduce this contamination; but the prophylactic and therapeutic value of intranasal penicillin

in staphylococcal skin infections will depend also on the absence of significant contamination from other sites.

We are indebted to Mr. William Gissane, clinical director of the Birmingham Accident Hospital, for permission to investigate these cases; to Sister M. M. Taylor for much help and for supervising penicillin therapy; to Mr. G. J. Harper and Mr. E. G. Knott and their technical assistants for much of the laboratory work; to Dr. V. D. Allison of the Staphylococcal Research Laboratory, Colindale, for the phage typing and much assistance; and to Prof. A. Bradford Hill and Dr. W. J. Martin, of the London School of Hygiene and Tropical Medicine, for statistical advice.

REFERENCES

Abraham, E. P., Chain, E., Fletcher, C. M., Gardner, A. D., Heatley, N. G., Jennings, M. A., Florey, H. W. (1941) *Lancet*, ii, 177.
Burrows, A., Russell, B., May, H. B. (1945) *Brit. J. Derm.* **57**, 97.
Chapman, G. H., Berens, C., Peters, A., Curcio, L. (1934) *J. Bact.* **28**, 343.
Christie, R., North, E. A., Parkin, B. J. (1946) *Aust. J. exp. Biol. med. Sci.* **24**, 73.
Colebrook, L., Duncan, J. M., Butterfield, W. J. H. (1947) *Lancet*, i, 321.
Cornbleet, T., Novak, M., Schorr, H. C. (1947) *J. invest. Derm.* **8**, 9.
Cowan, S. T. (1938) *J. Path. Bact.* **46**, 31.
Cruickshank, J., Cruickshank, R. (1931) in Medical Research Council's A System of Bacteriology in Relation to Medicine. London; vol. 8, p. 343.
Cruickshank, R. (1937) *J. Path. Bact.* **45**, 295.
Delafield, M. E., Straker, E., Topley, W. W. C. (1941) *Brit. med. J.* i, 145.
Duthie, E. S. (1944) *Brit. J. exp. Path.* **25**, 96.
Fairbrother, R. W. (1940) *J. Path. Bact.* **50**, 83.
Fisk, R. T., Mordvin, O. E. (1944) *Amer. J. Hyg.* **40**, 232.
Fleming, A. (1946) Penicillin, its Practical Application. London; p. 320.
Gillespie, E. H., Devenish, E. A., Cowan, S. T. (1939) *Lancet*, ii, 870.
Harper, G. J. (1943) *Ibid*, ii, 569.
Hobbs, B. C., Carruthers, H. L., Gough, J. (1947) *Ibid*, ii, 572.
Julianelle, L. A., Wieghard, C. W. (1935) *J. exp. Med.* **62**, 11.
Knott, F. A., Blaikley, J. B. (1944) *J. Obstet. Gynæc.* **51**, 386.
— — (1946) *Brit. med. J.* i, 349.
McFarlan, A. M. (1938) *Ibid*, ii, 939.
Martin, N. H. (1942) *Ibid*, ii, 245.
Meads, M., Flipse, M. E. jun., Barnes, M. W., Finland, M. (1945) *J. Amer. med. Ass.* **129**, 785.
Miles, A. A. (1944) *Lancet*, i, 809.
— Williams, R. E. O., Clayton-Cooper, B. (1944) *J. Path. Bact.* **56**, 513.
Ministry of Health (1930) *Rep. publ. Hlth med. Subj., Lond.* no. 58, p. 27.
Neter, E. (1937) *J. Bact.* **34**, 243.
Schwabacher, H., Cunliffe, A. C., Williams, R. E. O., Harper, G. J. (1945) *Brit. J. exp. Path.* **26**, 124.
Thomson, StC., Hewlett, R. T. (1895) *Trans. med.-chir. Soc.* **78**, 329.
Williams, G. C., Sims-Roberts, C., Cook, G. T. (1947) *Mon. Bull. publ. Hlth Lab. Serv.* **6**, 13.
Williams, R. E. O. (1946) *J. Path. Bact.* **58**, 259.
— Harper, G. J. (1946) *Brit. J. exp. Path.* **27**, 72.
— Miles, A. A. (1945) *J. Path. Bact.* **57**, 27.
— — (in the press) *Spec. Rep. Ser. med. Res. Coun., Lond.*
Wilson, G. S., Atkinson, J. D. (1945) *Lancet*, i, 647.

PROPERTIES OF BOVINE SERUM HEATED WITH FORMALDEHYDE

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IN the search for substitutes for human plasma Edwards (1944) and later Massons (1946) investigated bovine serum treated with formaldehyde (formol) and heated. Infusions of bovine serum treated in this way were given to over 200 patients by Edwards (1946) and to 300 patients by Massons with apparently good results. Mělka et al. (1947) claim to have confirmed Massons's results and conclude that calf plasma prepared by his method should prove a highly satisfactory substitute for human blood and plasma in transfusion practice.

A substitute for human plasma must be non-toxic and non-antigenic, and it must have a colloid osmotic pressure at least comparable with that of human plasma. Massons showed that in guineapigs, rabbits, and dogs no anaphylactic reaction followed the injection of bovine serum heated with formaldehyde to 100°C, and, according to Edwards (1946), destruction of the agglutinins is associated with changes in the globulin fraction after heating to 72°C; but no further investigations of the antigenic properties of the serum seem to have been made. Gutfreund and Ogston (1945) found that when serum with added formaldehyde is heated there is an aggregation of the proteins to form a polydisperse system of larger particles. This aggregation progresses with increasing temperature and causes a fall in colloid osmotic pressure and a considerable increase in viscosity. Heating for 30 min. to 70°C and 80°C resulted in a reduction of colloid osmotic pressure to 58% and 48% respectively of that of untreated serum. Mělka et al. (1947) found no reduction in colloid osmotic pressure when plasma was heated to 100°C, but they gave no experimental details. On the other hand, Edwards (1946) reported that when serum, to which formaldehyde and ammonia had been added, was heated to 100°C it showed no colloid osmotic pressure at all. Because of this disagreement in results it is not clear whether heating which destroys the antigenic properties of serum also results in the preparation having a colloid osmotic pressure too low to be of use in the treatment of peripheral vascular insufficiency. In this paper we report an attempt to solve this problem.

PRESENT INVESTIGATIONS

Serum was prepared from fresh bovine blood according to the method described by Massons.

The serum having been separated from the blood-cells and fibrin in a centrifuge, formaldehyde was added to a final concentration of 0·35%, and ammonium hydroxide to a final pH of 7·2. (In some of the earlier preparations about an equal volume of 6% glucose was next added, but this step was discarded because the same precipitation occurred in diluted and in undiluted serum.) The serum was heated in 200 ml. portions on a boiling-water bath, where it was kept for the required time at a constant temperature; it was then cooled under the cold tap, placed in ampoules, and stored in the ice-box.

Toxicity.—Three rabbits, each weighing 2000–2500 g., were injected intravenously with 18 ml. of formol-serum heated to 95°C for 2 min., apparently without effect. A further four rabbits of the same weight, anæsthetised with urethane, were given 35–45 ml. intravenously over a 19-min. period; the blood-pressure, simultaneously measured, remained unchanged. Finally, three rabbits were each given an average of 93 ml. of the serum intravenously during 20 min., and the blood-pressure showed only a slight increase; one of these three rabbits died after 1 day and another after 2 days.

In a second series of experiments ten rabbits were bled, an average of 61 ml. of blood being taken. For this amount was substituted 50 ml. of formol-serum heated to 95°C for 2 min. No immediate toxic effect was seen, but one of the animals died within 12 hours, and another after 2 days. The remaining eight rabbits lived a month or more after the experiment.

The toxicity of untreated plasma was considerably higher. Four rabbits showed no symptoms after receiving 10 ml. intravenously, and one survived 20 ml. But when five rabbits were bled and then injected intravenously with about 35 ml. of untreated plasma, four died within 12 hours and the only one that survived showed severe toxic symptoms.

Antigenic Effects.—The antigenic properties of formol-serum heated to 95°C for 2 min. were tested both in vitro and in vivo. In-vitro tests were based on the precipitin test and the complement-fixation test. Two series of rabbits were treated with intravenous injections of 2 ml. of serum every second day; one series received untreated bovine serum, while the other was given the formol-serum. After 2 and 3 weeks from the start of treatment, the rabbits' serum was tested against untreated bovine serum and formol-serum.

The technique was the same as that used in Statens Seruminstitut, Copenhagen, for routine clinical work. The serum of the rabbits treated with bovine serum showed a well-marked reaction when tested with untreated bovine serum. The precipitin reaction was detectable in dilutions up to 1 : 64, and complement-fixation in dilutions of 1 : 256. This serum gave no reaction at all when tested against undiluted formol-serum. The serum of rabbits treated with formol-serum gave no reaction with either untreated serum or formol-serum.

In-vivo tests were carried out with rabbits and guinea-pigs. Four series of experiments were done on rabbits. The animals were injected with either formol-serum or untreated serum. After 12–30 days a second injection of formol-serum or untreated bovine serum was given. During this second injection the blood-pressure or the respiration-rate was measured in some of the animals; a fall in blood-pressure and rapid shallow respirations are very sensitive indicators of shock. Experiments of the same kind were carried out with guineapigs, and the results are given in table I.

From these experiments with rabbits and guineapigs it is clear that formol-serum heated to 95°C for 2 min. has much weaker antigenic properties than untreated bovine serum; but the experiments with rabbits show that treated serum is not entirely devoid of antigenic properties, for a pronounced effect is seen in the series where the animals were sensitised with formol-serum and later injected with untreated serum, as well as in the series where the rabbits were sensitised with untreated serum and later injected with formol-serum.

Experiments on Colloid Osmotic Pressure.—The colloid osmotic pressure was measured by the method of Krogh and Nakazawa (1927) with slight and insignificant modifications. Determinations were made on the serum both before and after treatment with formol and heating. The colloid osmotic pressure of the untreated serum was 20·0±0·4 mm. Hg. In the last series of experiments the fall in colloid osmotic pressure after heating and the antigenic properties of the heated plasma were compared. From table II it will be seen that serum heated to 95°C for 5 min. has less than half the colloid osmotic pressure of the original serum—a considerable loss. Moreover, even treatment resulting in a reduction to little less than two-thirds of the initial colloid osmotic pressure does not completely destroy the antigenic properties.

TABLE I—ANTIGENIC EFFECTS ON RABBITS AND GUINEAPIGS OF UNTREATED BOVINE SERUM AND OF BOVINE SERUM HEATED WITH FORMALDEHYDE TO 95°C FOR 2 MIN.

No. of rabbits	First injection (serum and dose)	Second injection		
		Days after first injection	Serum and dose	Results
14	Formol-serum 14–60 ml.	12–30	Formol-serum 20–35 ml.	Slight or no effect on respiration; none died
3	Untreated serum 10–20 ml.	12–30	Formol-serum 20–35 ml.	Pronounced effect on respiration and diminished blood-pressure in two animals; none died
9	Formol-serum 14–60 ml.	14–30	Untreated serum 2–10 ml.	Slight or no effect on some animals; severe fall in blood-pressure in two surviving animals; one died of shock
5	Untreated serum 10–20 ml.	14–30	Untreated serum 2–10 ml.	Typical shock in all animals; severe fall in blood-pressure in three surviving animals; two died

No. of guinea-pigs	Sensitising agent	Intravenous injection after 14 days	Results
5	Formol-serum	Formol-serum 1–2 ml.	No shock
3	Untreated serum	Formol-serum 1–2 ml.	No shock
5	Formol-serum	Untreated serum	No shock
5	Untreated serum	Untreated serum	All died of typical shock

TABLE II—EFFECT OF HEATING FORMOL-SERUM ON ITS COLLOID OSMOTIC PRESSURE AND ANTIGENIC PROPERTIES

Treatment of plasma	Colloid osmotic pressure			Production of shock *
	No. of experiments	mm. Hg	% of initial value	
Untreated	8	20·0 ± 0·4	100	All died in 4–5 min.
Formaldehyde and ammon. hydrox.; not heated	3	15·6 ± 1·0	80	All died in 4–5 min.
Formaldehyde and ammon. hydrox.; heated to 50°C for 2 min.	..	..	..	All died
Formaldehyde and ammon. hydrox.; heated to 75°C for 2 min.	7	12·6 ± 0·3	63†	Half died
Formaldehyde and ammon. hydrox.; heated to 95°C for 2 min.	9	9·3 ± 0·2	48	None died

* Tested on guineapigs sensitised 3 weeks previously with the plasma to be tested. The test was performed by injecting 1–2 ml. of plasma intravenously; 6 animals were tested in each group.
† The colloid osmotic pressure was the same with heating for any time up to 15 min.

DISCUSSION

These experiments confirm previous claims that the toxicity of bovine serum is greatly reduced by heating with formaldehyde. The same effect is seen when the antigenic properties of the treated formol-serum are examined. This decline is, however, associated with a 50% reduction in the colloid osmotic pressure of serum which has been sufficiently freed from antigenic properties not to produce anaphylactic shock in guineapigs. This means that the therapeutic effect is reduced by half, and the dose of the treated serum must be correspondingly increased. For this reason the doses given in the toxicity experiments on rabbits are not exceptionally high, and as seen in the experiments the lower limit of safety seems to be surpassed with the doses given.

Furthermore, although the in-vitro tests and the anaphylactic-shock tests on guineapigs were negative in these experiments, the tests on rabbits given doses comparable with those used clinically show that slight or even serious toxic reactions can occur in some individuals. Bing (1947) found that even treatment more intense than that adopted here did not free the serum from antigenic properties. In fact, his experiments show only a very slight decline in the antigenic properties. Both Bing's and our experiments indicate that grave effects may ensue in some patients after repeated injections.

In spite of the favourable clinical reports on the usefulness of formol-treated bovine plasma or serum in several hundred cases, a word of caution is probably indicated. Since the colloid osmotic pressure of formol-treated bovine serum sufficiently freed from antigenic properties is at most only a third of that of human plasma, the doses must be three times as high to get the same therapeutic effect; and from the present investigations it seems doubtful whether 1–2 litres, which must be

regarded as the smallest sufficient dose, can be given without untoward effects.

SUMMARY

Bovine serum treated with formaldehyde and heated showed slighter toxicity and antigenic properties than untreated serum.

To avoid anaphylactic reactions in guineapigs the serum had to be treated so intensively that the colloid osmotic pressure was reduced to less than 50%.

The formol-treated serum showed some toxicity and antigenic effects when injected into rabbits in doses comparable to those required clinically as a plasma substitute.

A warning must therefore be given against the uncontrolled use of formol plasma or serum.

We are indebted to Prof. Brandt Rehberg for allowing us to carry out the osmotic-pressure determinations in the University of Copenhagen Zoophysiological Department.

REFERENCES

Bing, J. (1947) Personal communication (to be published in *Acta. med. scand.*).
Edwards, F. R. (1944) *Brit. med. J.* i, 73.
— (1946) *Lancet*, ii, 437.
Gutfreund, H., Ogston, A. G. (1945) *Biochem. J.* **39**, 186.
Krogh, A., Nakazawa, F. (1927) *Biochem. Z.* **188**, 241.
Massons, J. M. (1946) *Lancet*, ii, 341.
Mélka, J., Rapant, V., Zapletal, B. (1947) *Ibid*, ii, 382.

RETROPHARYNGEAL LIPOMA

REPORT OF A CASE

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LIPOMAS are often found in the cervical region but are fairly rare close to the pharynx.

The most recent reference to them was in 1940, when Putney and Fry [1] published 2 cases, one in a man aged 37 and the other in a man aged 40. In 1927 Figi and Hunt [2] included a case of their own from the Mayo Clinic in a series of 35 collected cases of lipoma of the pharynx. Previously, in 1926, Herriman [3] reported 25 cases in patients whose ages ranged from 4 to 92 years.

The present case is of interest because of the tender age of the patient.

A female infant, aged 3 months, was admitted to the Royal Liverpool Children's Hospital with six weeks' history of difficulty in breathing and occasional apnœa for half a minute. She took very little food, breathed through her mouth, and appeared to be losing weight.

In hospital she fed slowly and with great difficulty. Radiography of the neck revealed nothing abnormal. Examination of the blood showed a high polymorph and monocyte count, pointing to a severe septic type of infection. A lump on the left side of the pharynx suggested the diagnosis of retropharyngeal abscess.

Operation.—The lump was incised under light ether anæsthesia. The mass felt hard to the touch, and no pus was obtained. Four days later the pharynx was examined again, and a white branch of the lipoma was seen through the first incision, which on being extended from the level of the uvula to the glottic rim revealed an encapsulated mass of yellowish-white tissue.

The mass was removed in the same way as a tonsil, and the gap was closed with interrupted catgut suture. Penicillin was injected three-hourly for four days. The baby made an uninterrupted recovery, her feeding improved, and her weight steadily increased.

Histology.—The specimen was an irregular mass of fatty tissue with a fibrous-tissue reticulum and measuring $1^1/_4$ in. by 1 in., enclosed in a capsule—i.e., a simple lipoma.

I am indebted to Dr. R. W. Brookfield for permission to publish this case.

1. Putney, F. J., Fry, K. E. *Ann. Otol., &c., St Louis*, 1940, **49**, 967.
2. Figi, F. A., Hunt, V. C. *Surg. Clin. N. Amer.* 1927, **7**, 1531.
3. Herriman, F. R. *Laryngoscope, St Louis*, 1926, **36**, 339.

CALCIUM CONTENT OF SKIN IN LUPUS VULGARIS TREATED WITH CALCIFEROL

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THAT the Sauerbruch-Hermannsdorfer diet leads to decline in the chlorine content and a simultaneous rise in the calcium content of diseased skin was pointed out by Hermannsdorfer (1931). Van der Schaaf and van Ormondt (1932) found that the calcium content of the guineapig's skin was reduced by 10% when table salt was added to a diet rich in calcium, whereas a reduced salt intake had the opposite effect.

To ascertain whether there is any change in the calcium content in clinically healed lupus tissue of patients treated with calciferol, skin biopsies have been made over six months in patients attending the skin clinic of the Coventry and Warwickshire Hospital. The number of cases investigated is unfortunately small, limited by the number of suitable and willing patients, but I think that the consistent results are significant enough to warrant publication.

All the patients investigated had been treated for six months, except Miss W, who was treated for three months, and the standard dosage of calciferol was 150,000 units a day by mouth. In the case of Mrs. Y this was changed to 'Ostelin' injections 300,000 units twice weekly for the last three months owing to intolerance. Routine serum-calcium estimations were made throughout also on the day of biopsy, and in no case did these show a gross enough deviation from normality to merit consideration. All the patients were on a normal mixed diet, none receiving extra milk or calcium by mouth.

Specimens of fresh skin removed under local anæsthesia were submitted to Miss E. Tonks, M.SC., of the research department of the Birmingham and Midland Eye Hospital, for estimation by the method of Rappaport and Rappaport (1932):

The skin specimen is dried, its dry weight ascertained (usually 0·01 g.–0·04 g.), and then ashed. The ash is dissolved in hydrochloric acid, neutralised, and the calcium precipitated with ammonium oxalate. After repeated washings to remove excess ammonium oxalate, the precipitate is dissolved in sulphuric acid, and the free oxalic acid is oxidised by the addition of a measured quantity of accurate cerium sulphate solution. The excess of cerium sulphate is determined by titration with sodium thiosulphate. Results are given in terms of dried weight.

The following amounts of calcium were found:

Normal skin from non-lupus patients:
Mrs. S: 30 mg. per 100 g. of dried skin.
Mr. T: 44 mg. per 100 g. of dried skin.
Scar tissue from non-lupus patients:
Mr. U: 35 mg. per 100 g. of dried tissue of old fracture scar.
Mr. V: 29 mg. per 100 g. of dried tissue of lobectomy scar a month old.
Untreated active lupus:
Miss W: 40 mg. per 100 g. of dried skin.
Healed lupus:
Miss X: 74 mg. per 100 g. of dried skin.
Mrs. Y: 71 mg. per 100 g. of dried skin.
Mr. Z: 63 mg. per 100 g. of dried skin.

The consistently higher calcium content of healed lupus made it necessary to compare normal skin with healed lupus skin taken from the same patient on the same day. This gave the following results:

Date	Patient	Calcium content (mg. 100g. dried skin)	
		Normal skin	Healed lupus
June 14, 1947 ..	Mrs. Y ..	50 ..	68
June 5, 1947 ..	Miss X ..	48 ..	74
Aug. 11, 1947 ..	Miss W ..	34 ..	103

It is noteworthy that Mrs. Y had not received calciferol for a month and Miss X had not received calciferol for a week, but Miss W was at the time of biopsy taking calciferol by mouth.

It therefore appears that a localised increase of calcium (form not yet determined) occurs during healing in lupus tissue and may be essential for the arrest of the tuberculosis. Calciferol in the presence of lupus tissue makes this localised deposition possible.

SUMMARY

Healed lupus skin had a higher calcium content than normal skin from non-lupus patients who had not received calciferol.

Healed lupus skin had a higher calcium content than non-lupus skin taken from the same patient at the same time.

It is suggested that calciferol makes calcium available to lupus tissue.

I am indebted to Miss Tonks for her estimations and suggestions, and to Dr. W. P. Elford, physician in charge of the skin clinic, for permission to publish these cases.

REFERENCES

Hermannsdorfer, A. (1931) *Münch. med. Wschr.* **78**, 571.
Rappaport, F., Rappaport, D. (1932) *Mikrochemie*, **15**, 107.
Van der Schaaf A. T., van Ormondt, J. (1932) *Ned. Tijdschr. Geneesk.* **76**, 148.

Reviews of Books

Cancer of the Breast

DUNCAN C. L. FITZWILLIAMS, C.M.G., M.D., CH.M., F.R.C.S., F.R.C.S.E., surgeon, Mount Vernon Hospital and the Radium Institute. London: Heinemann Medical Books. 1947. Pp. 199. 25*s*.

THE object of this book is to put forward Mr. Fitzwilliams's own ideas on breast cancer and its spread, diagnosis, and treatment. The chapter on early diagnosis is useful in recording the signs and symptoms interpreted by a surgeon of long experience; but, like the rest of the book, it includes too many case-histories which add little to the information given. Treatment is by local removal of the tumour by a modified radical operation; or by radium, either implanted or on surface applicators. Mr Fitzwilliams's advocacy of local removal is well known, but remains very difficult to accept in spite of the cases he cites. The radium techniques described are old-fashioned and the dosage is given in milligramme-hours. The chapter on X-ray treatment by Dr. Alice Ross gives the opinions of an individual radiotherapist rather than a description of methods of treatment.

At the end the question has to be asked, "For whom is this book intended?" It is written in a colloquial style, unusual for a specialist work on the treatment of cancer; and though the effects of the author's unorthodox method are interesting, only odd results are given with no background of numbers of cases treated. For the general practitioner the controversy between surgeons is confusing; while the last place in which one would wish to see the book would be in the hands of the lay public.

Physical Fitness Appraisal and Guidance

THOMAS KIRK CURETON, jr., M.A., M.P.E., PH.D., professor of physical education and director of the physical fitness research laboratory of the University of Illinois. London: H. Kimpton. 1947. Pp. 366. 30*s*.

Dr. Cureton, with a number of associates, has measured the cardio-respiratory efficiency, the motor fitness, and physique of thousands of normal young men and women on the Urbana Campus of the University of Illinois, with the corollary of demonstrating the improvement that results from properly prescribed physical exercise. All first-year students in the colleges were submitted to what is appropriately described as a "battery of tests" on a scale which we with our comparatively simple criteria can only regard as colossal. The investigations comprise as their objective physique, organic condition, and motor efficiency; and with unlimited detail these broad considerations are elaborated to comprehend anything and everything that may be included as applicable. It is unlikely that many readers will desire to peruse and study the numerous tables and charts that occupy the major portion of this encyclopædic production. Nor can it be said that such application can be of any value in itself. It is enough to browse, to seek for titbits to satisfy the palate from the heavy fare submitted for mastication and digestion. Furthermore, although the greatest credit must be accorded to the patience and industry that provided such elaboration, it cannot be said that much has been gleaned to replace or displace the conclusions of previous workers with their old-fashioned simplicity. We read of the detailed examination of Arne Andersson and Gunder Hagg, the world-record-breaking Swedish middle-distance runners who competed in this country a couple of years ago. The limitations of laboratory investigations are well reflected in the conclusion that "the results did not explain the remarkable performances of these athletes who would appear to differ from ordinary healthy persons by reason of a well-developed technique and judgment."

Probably every American contribution that has ever appeared on the subject is mentioned in the bibliography, as well as some from Europe. Among British workers the names of F. A. Bainbridge (whose original manual *The Physiology of Muscular Exercise* has been the inspiration of all subsequent work), Martin Flack, Leonard Hill, A. V. Hill, Adolphe Abrahams, F. W. Griffin, and G. E. Friend are included. A comprehensive list of exercises and work items will be of scant comfort to the obese who seek in exercise an aid to reduction. They will learn that to work off one pound of fat (4320 calories) they must walk 144 miles at the rate of 2 miles an hour, or for 66½ miles at 3½ miles an hour, which is a reasonably brisk speed for a "constitutional." Even when running at the pace of a good marathon runner they would have to cover 43 miles, and the same reduction could be obtained by 9½ hours' horseback galloping, by foxtrotting continuously for 16 hours, or by playing the piano for 30–77 hours according to the type of composition.

The Diagnosis of the Acute Abdomen in Rhyme

ZETA. London: H. K. Lewis. 1947. Pp. 88. 5*s*. 6*d*.

Not patience nor dexterity—
No, nor the tools a Nuffield buys—
Can make that surgeon worth his fee
Who will not learn to use his eyes.

Zeta has filled a golden book,
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Those finer points you never learned.

If in experience grown grey,
Undoubtedly his wits are green,
Whose craft embraces Z *et* A
And all the alphabet in between.

A Textbook of Mental Deficiency (7th ed. London: Baillière. 1947. Pp. 534. 30*s*.).—A new edition of Dr. A. F. Tredgold's classic is always welcome. New illustrations have been added and the book has been brought up to date in other ways—especially in regard to the effects of the Education Act of 1944, as it applies to educationally subnormal and defective children.

Microscopic Anatomy of the Vertebrates (3rd ed. London: H. Kimpton. 1947. Pp. 354. 30*s*.).—Dr. J. I. Kendall's book, based on selected representatives of the various classes of vertebrate, gives the student of zoology a working knowledge of their microscopic anatomy. Handbooks on comparative histology are scarce, and this is a good one.

Hale-White's Materia Medica (27th ed. London: J. & A. Churchill. 1947. Pp. 549. 15*s*.).—A book that has reached its twenty-seventh edition needs no other recommendation. Dr. A. H. Douthwaite notes in his preface that advances in research, especially in relation to curare, antibiotics, and insecticides, have led him to revise the work completely, and to emphasise the clinical application of pharmacology. The sections dealing with the sex hormones have been revised by Dr. P. M. F. Bishop.

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vitamin B_1	0.6 mg.	calcium	160 mg.	copper	p.p.m. each
vitamin C	20 mg.	iron	68 mg.		

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while demanding the fullest investigation if treatment is to be successful, may resolve itself into a need for full supplies of the dietary factors concerned in reproduction. Of these, the natural forms of vitamin E, present in whole wheat germ oil, are known to be of the first importance.

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References :—Shortage of space precludes list of references, but full documentation may be obtained on application to Clinical Research Dept. 39.B.

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THE LANCET

LONDON: SATURDAY, FEB. 28, 1948

Terminology of the Rh Factor

THERE must be comparatively few doctors who know precisely what is meant by Rh_0'' and many potential examinees who wish that the wretched Rh factor had never been discovered. During the last few years a knowledge of Rh has become increasingly necessary in practice, while the confusion of differing and changing nomenclatures has made the essential facts increasingly difficult to understand. Anybody wishing to follow developments in this field has had to master two separate languages—that of WIENER on the one hand and of FISHER and RACE on the other.

Faced with the problem of deciding how commercial anti-Rh sera should be labelled, the Surgeon-General of the United States Public Health Service convened a board to review the nomenclature, and their main conclusions have now been published.[1] In their view the Wiener nomenclature has priority; it is in use by many clinicians and research-workers, particularly in America; and the theory on which it is based has not been shown to be incorrect. But its terms give only a partial account of the antigens present; it has changed rapidly from year to year; it involves complications, both typographical and genetic, of subscripts and superscripts, numbers, primes, and other symbols; and it involves the somewhat doubtful assumption of the production by single genes of multiple antigens. The Fisher-Race nomenclature, on the other hand, gives an exact account of the antigens present, is adopted widely in England and increasingly in the U.S.A. and elsewhere, is simple and direct, and uses a single letter for the same genes and antigens; but the scheme "lacks priority and is based on a genetic hypothesis which is purely theoretical and for which no clear proof exists." The board finally recommend that both terminologies should appear on the labels of anti-Rh sera, the Wiener name first, followed by the Fisher-Race within parentheses. The board have clearly taken great pains to reach an impartial decision, but they do not appear to have given full weight to what must surely be regarded as FISHER'S unique contribution—the idea of three mutually antithetical pairs of Rh antigens. This conception does not stand or fall by any particular genetic theory. FISHER pointed out that the chromosome concerned with Rh carries C or c, D or d, and E or e, so that eight possible combinations of antigens can be inherited: CDe; cde; cDE; cDe; cdE; Cde; CdE; and CDE. Every human being inherits one of these combinations from each of his parents, and some combinations are far commoner than others, the five commonest genotypes being: CDe/cde; CDe/CDe; cde/cde; CDe/cDE; and cDE/cde. Moreover, each of the six elementary antigens can provoke the formation of a corresponding antibody—for example, a person of the genotype cde/cde, if transfused repeatedly with blood of type CDe/CDe, may form anti-C+anti-D antibodies. These facts are now generally accepted; but in 1943, when FISHER introduced his scheme, the position was far from clear. At that time no-one realised that there were three pairs of mutually antithetical antigens, and the reactions between the distinguishable subtypes and the different sera so far discovered were a bewildering tangle. WIENER, who had played a notable part in the early history of the Rh factor, at first denied the existence of FISHER'S then hypothetical antigens d and e and found them incompatible with his own conceptions.[2] Later, however, when MOURANT[3] discovered anti-e and it proved to have precisely the reactions predicted by FISHER, WIENER[4] incorporated the antigen e in his scheme. He was, indeed, one of the first to grasp the importance of FISHER'S work and he adopted many of FISHER'S other ideas in his own terminology; thus he introduced the terms Hr', Hr_0, and Hr'' to fall into line with FISHER'S idea of a trio of recessive antigens, c, d, and e.

The recommendations of the American board have to some extent been dictated by considerations which do not apply with equal force in this country, and their judgment must be regarded as an interim one. In his letter on another page WIENER sets out the arguments for the exclusive adoption of his nomenclature. Nevertheless, British workers are likely still to prefer the Fisher-Race terminology, because they have found it easier to teach and to memorise, as the following example will show. A person belonging to the second commonest Rh genotype in Europeans would be classed as CDe/CDe in one terminology and as Rh_1Rh_1 in the other; it is easy to see that such a blood would not be agglutinated by the serum anti-E and would be agglutinated by the excessively rare serum anti-e; but how is one to remember whether or not it reacts with anti-Rh'' or anti-hr''? This controversy over nomenclatures must not, however, be mistaken for an argument about the merits of different research-workers' contributions to our knowledge of the Rh factor. If, as seems possible, the Fisher-Race terminology is finally adopted for international use, this will not imply any lack of recognition of the magnificent contribution which WIENER has made to the development of the subject.

1. Castle, W. B., Wintrobe, M. M., Snyder, L. H. *Science*, 1948, **107**, 27.
2. Wiener, A. S., Sonn, E. B. *Ann. N.Y. Acad. Sci.* 1945, **46**, 969.
3. Mourant, A. E. *Nature, Lond.* 1945, **155**, 542.
4. Wiener, A. S. *Science*, 1945, **102**, 479.

Reactions to Cold Weather

THE body protects itself against chilling by increasing heat-production and reducing heat-loss. In "temperate" climates, such as ours, people can be divided roughly into two classes, an active and a passive, according to which of these two methods they favour in cold spells. The active class are braced by the cold; they speak sincerely of "this healthy weather," meaning that it stimulates them bodily and mentally and brings them a sense of well-being; these are the people who revel in cold baths, and in extreme cases break the ice to bathe in the Serpentine. Conversely, the passive class are incapacitated and made miserable by the cold: they huddle themselves in rugs and thick clothes, and are chilled and cyanosed for hours after a cold immersion; like the tortoise they become fully alive only under the hot summer

sun. Class I take pleasure in stimulating the increase in muscular tone which is the main mechanism for raising bodily heat-production, whereas class II keep their skin surface carefully shielded so that this mechanism is rarely invoked. The class to which an individual belongs depends on age (though not all children are in class I nor all septuagenarians in class II); sex (it is not only their deeper subcutaneous fat that makes women stand cold better than men); occupation (military training converted many from class II to class I); endocrine balance (witness the hyperthyroid's dislike of hot weather and the myxœdematous tendency to crouch over the fire); nutrition and general health (the person who is undernourished, whether from insufficient food or malabsorption, instinctively conserves his body-heat); and no doubt many other factors, physical or emotional, endogenous or exogenous, congenital or acquired.

How far the different responses to chilling are associated with the many ailments known to be exacerbated by cold weather is a subject which deserves study. The few unfortunates subject to true cold-sensitivity have merely to immerse one hand in cold water to produce a general urticaria or angio-neurotic œdema. In others peripheral chilling produces a paroxysmal hæmoglobinuria; if a sample of their blood is cooled to 5°C and then rewarmed to body-heat hæmolysis occurs through an auto-hæmolysin produced by the cold. Heightened muscular tension may be important in the causation of "muscular rheumatism," especially where a localised icy draught rapidly chills warm muscles. But it is the tendency of cold to precipitate reflex spasm of vascular and visceral plain muscle that is the most potent cause of trouble. In Raynaud's disease local vascular reactivity to cold reaches an extreme degree. In normal people chilling of the hands raises the blood-pressure from general peripheral vasoconstriction, a phenomenon exploited in the cold-pressor test for blood-pressure lability; perhaps for this reason anginal subjects commonly find that sudden chilling precipitates an attack. Cold is one of the commonest precipitating factors of the visceral neuroses. RYLE[1] describes a case of spastic colon where exposure to a cold east wind produced a palpable tumour which immediately disappeared in a hot bath. Peptic-ulcer patients similarly note the tendency of cold weather—particularly the first spell of cold east wind in autumn—to exacerbate their symptoms, while a thorough warming before a fire or in a hot bath will generally relieve their pain. Here the mechanism is mainly a reflex increase in gastroduodenal tone and peristalsis, but there is some evidence that chilling raises gastric acidity; thus HORTON and colleagues[2] observed that in a cold-sensitive subject the immersion of one hand in water at 10°C produced a rise in gastric acidity comparable to that after an injection of histamine. It seems possible that this rise and the occasional generalised urticaria in sensitive subjects may both result from the liberation of some histamine-like substance in the chilled tissues.

1. Ryle, J. A. Natural History of Disease. London, 1936; p. 170.
2. Horton, B. T., Brown, G. E., Roth, G. M. *Proc. Mayo Clin.* 1937, **12**, 129.

The question arises, if cold is at least a precipitating factor in peptic ulcer and other ailments, why are not these ailments more severe in countries with a more severe climate than our own? The explanation, no doubt, is that people in such countries take good care not to be chilled, whether by wearing protective clothing, by employing more effective methods of house-heating and heat conservation with double windows and similar devices, or perhaps by adjusting their diet so as to make it produce more heat. A diet rich in protein and fat yields more heat than one consisting mainly of carbohydrate; and it is broadly true that the farther one goes from the Equator the higher the proportion of protein and fat in the staple diets of the population. In such climates as ours, where severe cold is sufficiently rare to catch us unprepared, cold hands and feet are probably at least as common as among the Esquimaux. It is partly because we are slow to start heating our homes and offices and to don our full winter clothing that our peptic-ulcer patients find the autumn the worst time for recurrence of their symptoms. The moral is clear: those who suffer generally or viscerally from chilling should prepare for cold in advance, and apply their precautions promptly.

Smear Technique in Cancer Diagnosis

EFFECTIVE removal of a malignant tumour while it is small and localised is still the surest method of treatment, and success therefore depends on early diagnosis. Histological examination provides one of the most valuable aids not only to exact diagnosis but also to early diagnosis, and a growing recognition of the significance of cell activity in relation to treatment and prognosis has renewed interest in cellular pathology.

In the method developed by PAPANICOLAOU and TRAUT,[1] which is based on examination of exfoliated cells, cellular pathology is being applied to the early diagnosis of cancer. PAPANICOLAOU's investigations of desquamated vaginal epithelium began thirty years ago with a study of cells in the vagina of guineapigs; and he later adopted the same method for the early diagnosis of human cancer. ISBELL and colleagues[2] have investigated vaginal smears, prepared according to PAPANICOLAOU's technique, from 1045 patients; and in 1000 of these the diagnosis was later checked by histological examination of tissue removed at operation. Among the 40 proved cases of cancer of the cervix there were 39 positive vaginal smears and 1 false negative; among 18 cases of cancer of the fundus there were 15 positive smears and 3 false negatives; and in each of 2 vaginal cancers the smear was positive. In the remaining 940 cases, where the diagnosis of cancer was eventually excluded, there were 11 positive smears. Thus the total combined error from the false negative and false positive smears amounted to only 1·5%. To achieve such accuracy the staff had to be carefully trained. Examination of the average smear took about twenty minutes, but up to two hours might be spent on a particularly difficult one. FREMONT-SMITH and his

1. Papanicolaou, G. N., Traut, H. F. Diagnosis of Uterine Cancer by Vaginal Smear. New York, 1943.
2. Isbell, N. P., Jewett, J. F., Allan, M. S., Hortig, A. T. *Amer. J. Obstet. Gynec.* 1947, **54**, 576.

associates [3] have reported on 12 cases of early cervical carcinoma, in 10 of which vaginal smears were positive. Biopsy, undertaken in 9 cases, confirmed the diagnosis in only 3, but in the remainder the diagnosis was confirmed when the tissues removed at operation were examined histologically. The original technique has been usefully modified by HUNTER and RICHARDSON.[4]

Only extensive trial can establish the value and limitations of this technique, and there is a risk that the many difficulties in the interpretation of results may bring it undeserved discredit. As GATES and WARREN [5] point out, good, bad, and indifferent results may be obtained by different people following the same directions; each worker must set up his own criteria. Since the malignant potentialities of cells are identified by relative rather than absolute changes in structure, fine shades of difference separating benign, atypical, and malignant phases must be recognised. It is well to remember that indications of malignancy, though they may be obvious and reliable in the nucleus, can never by themselves be of diagnostic significance in the cytoplasm. GATES and WARREN suggest that malignant cells are often more easily detected in smears than in sections of tissue; and the difficulty of the occasional misleading smear can be overcome by repeating the test. They claim that with obscure or borderline conditions, such as atypical hyperplasia of squamous epithelium of the cervix, the vaginal-smear method is particularly valuable in identifying the sequence of changes in the metamorphosis of benign into malignant cells. The method is also likely to prove of great importance in assessing the response of cancer cells to irradiation, both as regards initial response and subsequent recurrence.

PAPANICOLAOU'S latest work [6] suggests that this method may be usefully extended to the diagnosis of cancer of the bronchus, stomach, bladder, and kidney. Indeed, it seems that it should be applicable to cancer involving or communicating with any body cavity. In bronchial cancer he reports positive results in 22 out of 25 cases; and in several the test furnished the first indication of malignancy. WOOLNER and MCDONALD [7] have confirmed that in bronchial carcinoma this is a useful adjuvant to other procedures; and it is especially convenient where bronchoscopy is contra-indicated. The result was positive in at least 80% of their cases. One disadvantage is that it gives no clue to the site of the tumour; and in this respect examination of bronchial secretion is preferable. Also at the Mayo Clinic, DAUT and MCDONALD [8] have studied the diagnosis of malignant lesions of the urinary tract by the smear technique; out of 40 cases, 19 were positive and each was verified by biopsy. In genito-urinary practice the method is likely to be most useful for screening cases of obscure hæmaturia and in the investigation of lesions of the renal pelves or calices detected by excretory urography.

3. Fremont-Smith, M., Graham, R. M., Meigs, J. V. *New Engl. J. Med.* 1947, **237**, 302.
4. Hunter, W. C., Richardson, H. L. *Surg. Gynec. Obstet.* 1947, **85**, 275.
5. Gates, O., Warren, S. Handbook for Diagnosis of Cancer of Uterus by Use of Vaginal Smears. Cambridge, Mass., 1947.
6. Papanicolaou, G. N. *J. Amer. med. Ass.* 1946, **131**, 372.
7. Woolner, L. B., McDonald, J. R. *Proc. Mayo Clin.* 1947, **22**, 369.
8. Daut, R. V., McDonald, J. R. *Ibid*, p. 382.

Aims of Medicine

ORIGINALLY medicine was a purely curative art. In the relief of suffering the doctor's obligations were to his patient alone; and the personal relationship between them, expressed in the Hippocratic oath, is still the basis of medical ethics. But gradually it came to be realised that some diseases could be avoided by the application of rules, and from this arose the first ideas of preventive medicine and medical responsibility to the community. Even in the Middle Ages considerable successes were achieved by segregating the sick and by the use of quarantine. The real development of "public health," however, had to wait for advances in knowledge and the awakening of a social conscience. It was the appalling conditions of the industrial revolution in England, and recognition of the bacterial origin of many diseases, that chiefly led to the adoption of a new aim in the practice of medicine, in which the stress was laid on prevention rather than cure. From this time the need to protect the community was emphasised, and there was a shift of interest from the individual to the environment.

The successes of environmental medicine have of course been immense. Yet the fact remains that the prevention of disease by perfect control of environment is an impossible ideal for a naturally enterprising and migratory animal: if man's activities in the past had been limited by the necessity of a controlled environment, human progress would have been immeasurably retarded or even made impossible. The late J. S. HALDANE observed that "the characteristic mutual relations between organism and environment are those of stimulus and response," and in order to raise the standard of health medicine should try to enable the individual to respond sufficiently to maintain the fullest functional activity over a wide range of external conditions. On this view the emphasis of preventive medicine should be less on the environment than on the individual: the human being, with his potentialities for resisting and overcoming adversity, should not be regarded as something to be shielded from possible harm, but rather as a living dynamic organism to be further developed and raised to higher levels of functional perfection. Excessive concentration on the avoidance of danger is apt, it may be said, to produce a negative outlook on life, and a withdrawal from contacts which might conceivably result in disease; and where such a policy of "safety first" is carried too far it may be fatal to the progress of mankind—physical, mental, and social alike. The normal healthy person has great powers of actively resisting adverse conditions: he may actually be stimulated to greater health, both mental and physical, by withstanding them. But such powers are maintained only by frequent exercise: the athlete or skilled craftsman must practise to preserve physical efficiency; mental effort is equally necessary to keep the mind keen; and active immunisation against bacterial infection must be repeated at intervals if resistance is to be sustained. In each of these spheres forces are brought into play, or exercised, in order that environmental difficulties can be more easily overcome and in order that the person can lead a healthier or more satisfactory life. According to this argument, if health is the ultimate goal our principal

aim should be to fit the individual for an active, motile, and varied life.

This emphasis on individual fitness as the chief aim of medical work seems, however, to pay too little attention to the advantages of a sheltered environment. On the whole, is it not preferable to live in a country from which plague and cholera and typhus have been banished? Danger is no doubt stimulating, but where people or nations have to be continually on guard against it they devote to mere defence much of the energy that would otherwise go into development. Do we not, indeed, owe man's progress to the shelter given to individuals by social life?

> "The fundamental biological meaning of gregariousness," said WILFRED TROTTER, "is that it allows of an indefinite enlargement of the unit upon which the undifferentiated influence of natural selection is allowed to act, so that the individual merged in the larger unit is shielded from the immediate effects of natural selection and is exposed directly only to the special form of selection which obtains within the new unit. There seems little doubt that this sheltering of the individual allows him to vary and to undergo modifications with a freedom which would have been dangerous to him as an isolated being, but is safe under the new conditions and valuable to the new unit of which he is now a part." [1]

The people to whom medicine ministers are individuals but also members of human society, and their affairs must always be considered in relation to those of others. "All human psychology . . . must be the psychology of associated man, since man as a solitary animal is unknown to us, and every individual must present the characteristic reactions of the social animal. . . ." [1] It is true that groups have no existence apart from the individuals of which they are composed; and the doctor's duty is to serve those individuals. But he cannot do so properly if he looks on them purely as separate persons; for it is increasingly obvious that their failure to thrive, or their disease, is very often a result of inability to reconcile their separate selves to social life. No doubt excessive emphasis on the claims of society might reduce the doctor's regard for the individual; and it was with this in mind that we suggested [2] that it might be best for social medicine to grow out of hospital medicine rather than from traditional public health. This suggestion, however, did less than justice to a service which for generations has been aware of some of the problems that outsiders are now rediscovering; and the truth is that Prof. JOHN RYLE'S "social pathology" requires to be developed from both sides—by the clinician, with his eye on the individual, and the sanitarian, with his eye on the community.

Curative medicine is necessary; preventive medicine is necessary; functional medicine (or the pursuit of positive health) is necessary: we need the best possible care for the individual if he is to be strong and have his life abundantly, and we need medical care of the group in the interest of its members. But each of these kinds of practice can be improved by the study of social relationships. The conjoint aim of medicine is to improve environment and to enable the individual to cope with it, and nowadays the environmental factor which causes many people most trouble is the behaviour of other human beings.

1. Instincts of the Herd in Peace and War. London, 1922.
2. *Lancet*, 1947, i, 413.

Annotations

BOVINE PLASMA

SINCE we last discussed bovine plasma [1] the work of Massons [2] has been further investigated in Czechoslovakia by Mělka, Rapant, and Zapletal [3]; and our present issue contains a paper by Boesen, Larsen, and Nielsen in Denmark, and a letter from Barsoum in Egypt. Though the accounts by the Czechoslovak and Egyptian workers represent denatured calf plasma (D.C.P.), prepared by Massons's method, as a harmless and satisfactory substitute for human plasma, the continuing need for caution is emphasised by the report from Denmark. Boesen and his colleagues show that, if bovine serum denatured by Massons's method is not to produce anaphylaxis in the guineapig, it must be treated so intensively that the colloid osmotic pressure is reduced by more than half. If, like Massons, they had heated their serum to 100°C, the colloid osmotic pressure would have fallen even lower; indeed, Edwards [4] said that exposure of formolised ox serum to this temperature destroys its osmotic pressure completely. Mělka and his associates, on the other hand, found that the "denaturing process of Massons does not reduce the colloid osmotic pressure of the D.C.P. proteins." The point is important, for the value of any plasma or serum substitute depends partly upon the osmotic pressure it exerts, and if the osmotic pressure of D.C.P. is finally shown to be reduced or destroyed, its value as a plasma substitute will be questionable. The Danish workers also note that their serum still evinced toxic and antigenic properties when given to rabbits, and say that Bing was unable to render formolised bovine serum non-antigenic even by submitting it to more rigorous treatment than their own material received.

Massons and Edwards [5] explain differently the destruction of the antigenic properties of bovine plasma and serum by formaldehyde and heat. Massons holds that the active agent is formaldehyde, though heat accelerates the reaction and sterilises the material; ammonia is unnecessary but prevents cloudiness and pain on injection. Edwards attributes the despeciation to the heat; the formaldehyde and ammonia are added to prevent coagulation, excess formaldehyde being converted by the ammonia to hexamine. Horsfall [6] and Jacobs and Sommers [7] showed that the sera of several mammalian and avian species, more strongly formolised than in the methods of Massons and Edwards, retain the power of evoking antibodies, and it therefore seems likely that Edwards's explanation is the correct one. The rôle of ammonia in converting excess formaldehyde to hexamine is possibly important in another direction, and the suggestion by Massons that its addition "is not absolutely necessary" should be regarded with reserve, since Horsfall [6] showed that rabbits injected with formolised rabbit serum (in the preparation of which no attempt was made to remove excess formaldehyde) gradually developed a skin sensitiveness to formaldehyde in dilutions up to 1 : 500,000. Horsfall [8] also showed that intradermal injection of formolised serum proteins containing no uncombined formaldehyde produces skin reactions in persons sensitive to formaldehyde, but he did not study the intravenous injection of formolised proteins in such persons.

The work done in America during the war on bovine albumin prepared by the method of Cohn and Hughes

1. *Lancet*, 1946, ii, 355.
2. Massons, J. M. *Ibid*, p. 341; Introduction al Estudio de la Plasmoterapia. Barcelona, 1947.
3. Mělka, J., Rapant, V., Zapletal, B. *Lancet*, 1947, ii, 382.
4. Edwards, F. R. *Ibid*, 1946, ii, 437.
5. Edwards, F. R. *Brit. med. J.* 1944, i, 73.
6. Horsfall, F. L. *J. Immunol.* 1934, **27**, 553.
7. Jacobs, J. L., Sommers, S. C. *Ibid*, 1939, **36**, 531.
8. Horsfall, F. L. *Ibid*, 1934, **27**, 569.

has not yet been fully described. According to a brief report [9] on 60 volunteers given 25 g. of bovine albumin intravenously, 24 developed an illness characterised by: (1) a long incubation period (10–33 days); (2) variation in severity from a very mild to a protracted form with high fever lasting 4–6 weeks; and (3) sometimes purpura, signs of hepatic and renal damage, and cardiac symptoms with electrocardiographic changes. There was 1 death.

Thus it still has to be proved that bovine plasma or serum is as harmless and as effective as human plasma. It is to be hoped that the laboratory and clinical protocols of the Czechoslovak workers, the hæmatological and biochemical studies mentioned by Edwards in 1944 and fuller particulars of the 200 cases he mentioned in 1946, and the work of Bing will soon be published. Meanwhile, the verdict on bovine transfusion fluids must remain in suspense.

ŒDEMAS AND ANÆMIAS OF MALNUTRITION

THE classical explanations of clinical phenomena totter and fall with alarming frequency. Cardiac œdema used to be attributed to capillary damage through anoxæmia but has now been shown to result from diminished renal excretion of water and salt.[10] Famine œdema was widely ascribed to a low plasma-protein level causing low colloid osmotic pressure and therefore, according to Starling's views, filtration from capillaries. Iron-deficiency anæmia is complicated by the non-availability of most of the dietary iron; and macrocytic anæmias have to be interpreted in terms of Castle's extrinsic factor, Wills's factor, and folic acid.[11] The haze surrounding nutritional œdema was much in evidence at the Liége International Congress in October, 1946. Govaerts,[12] on the basis of war-time experience in Belgium, favoured low colloid osmotic pressure with slightly low plasma protein and circulatory inadequacy as the cause. Gounelle [13] had studied cases in Paris which led him to believe that pituitary deficiency played a major part. Sinclair,[14] who reported on the investigations of the Oxford Nutrition Survey in Holland and Germany, laid stress on the delayed water diuresis in the upright posture, the increased diuresis when lying down, the decreased excretion of administered salt, and the normal level of plasma proteins. Simonart [15] believed the cases seen in Belgium were caused by deficiency of thiamine.

When these questions were discussed by the experimental medicine section of the Royal Society of Medicine on Feb. 10, Dr. H. M. Sinclair divided nutritional œdema into wet beriberi and hypoproteinæmic and famine œdemas. The first is clinically distinct from the other two; the second may be a late stage of the third. Famine œdema is usually but not exclusively found in people who have subsisted on a diet low in protein of high biological value; similarly, their calorie intake is usually low but may be normal, and wasting is not an invariable finding. By an analysis of clinical, dietary, and biochemical studies on 3500 subjects in Holland in May and June, 1945, and on 62,250 subjects in Germany subsequently — done for public-health purposes — he showed that there is no significant difference in the levels of serum protein, serum albumin, serum cystine, various inorganic ions, hæmoglobin, and other substances found in cases of famine œdema, of other œdemas, or in people with no œdema. The colloid osmotic pressure is slightly reduced in famine œdema, and it is lower than the pressure calculated from Govaerts's equation; however, the cause of the œdema is not lowered colloid osmotic pressure. Sinclair said that close agreement was found between estimations of serum protein by gravimetric, densitometric, biuret, and microkjeldahl methods; but comparison of the first and last showed that the nitrogen content of serum protein in cases of famine œdema is significantly lowered, proving that there is a qualitative change in the protein. Five different lines of investigation have shown that deficiency of thiamine is of no causal significance in famine œdema; and it is not caused by circulatory failure or by increased permeability of capillaries to protein. Sinclair discussed nycturia, which is common in undernourished people, in terms of the diminished response of such people to Volhard's water test when standing (shown by Govaerts) and the increased response when lying. In normal people there is diminished water diuresis in the erect posture, possibly because the renal cortical shunt of Trueta and others is brought into action; this diminished water diuresis when standing is intensified in famine œdema, and Sinclair suggested that reabsorption of water in the juxtamedullary nephrons may be increased by arteriolar constriction producing the shunt, and that acrocyanosis may be explained by a similar shunt with arteriolar constriction in the skin. He also discussed the possible significance of the adrenals, which are usually hypertrophic in famine œdema but not in simple fasting in adults or in undernourishment in children; further, in pigeons McCarrison has demonstrated a well-marked adrenal hypertrophy in wet beriberi but not in dry beriberi.

Speaking of nutritional anæmia, Dr. Martin Hynes dealt in turn with deficiency of iron, protein, Castle's extrinsic factor, and Wills's factor. In his view the members of the vitamin-B complex have not been shown to play any part in these anæmias in man, with the possible exception of folic acid. He investigated 1400 Indian soldiers on the North-West Frontier, of whom 64% had hypochromic anæmia easily cured by iron; their dietary iron was high (65 mg. per day), but only 2–3 mg. daily was absorbed from the gut. He maintained that infections associated with malnutrition are more important than protein deficiency itself in causing nutritional anæmia, but protein—particularly meat rather than milk—is very important in treatment. Nutritional macrocytic anæmia can be cured with 'Marmite,' whereas pernicious anæmia cannot; the former is associated with lack of animal protein, and pregnancy and malaria are common precipitating factors. It is not yet clear whether the anæmia of sprue is caused by deficiency of Castle's factor or of Wills's factor or of both, and the value of folic acid is difficult to assess.

In the discussion, Dr. R. B. Hawes defined beriberi as a disease occurring in rice-eating people taking more than 3000 calories daily with carbohydrate providing more than 66% of the total calories. He has found egg-yolk very efficacious in the treatment of tropical macrocytic anæmia. Dr. D. J. C. Cunningham described observations made with Dr. Sinclair in Germany: in œdematous men in a civil internment camp there was a significant increase in the night excretion of water and also of solids, and the specific gravity of the urine fell throughout the night; there was no correlation between nycturia or œdema on the one hand and hypotension or bradycardia on the other. Dr. S. E. Dicker found increased extracellular fluid in rats subsisting on a protein-deficient diet for seven days; there was no fall in serum protein or in colloid osmotic pressure, but there was a diminished water diuresis. Dr. J. A. Manifold suggested that the Wills factor is probably folic acid. Prof. H. P. Himsworth, from the chair, suggested that the findings of Sinclair and Cunningham could be explained if in undernourishment there is failure to destroy the antidiuretic hormone of the posterior lobe of the pituitary, as happens in cirrhosis of the liver.

9. Heyl, J. T., Janeway, C. A. *J. clin. Invest.* 1947, **26**, 1185.
10. Warren, J. V., Stead, E. A. jun. *Arch. intern. Med.* 1944, **73**, 138. Merrill, A. J. *J. clin. Invest.* 1946, **25**, 389.
11. See leading article, *Lancet*, Feb. 14, p. 251.
12. Govaerts, P. Enseignements de la Guerre 1939–1945 dans le Domaine de la Nutrition. Liége, 1947; p. 23.
13. Gounelle, H. *Ibid*, p. 66.
14. Sinclair, H. M. *Ibid*, p. 75.
15. Simonart, E. F. *Ibid*, p. 105.

The lively discussion at this meeting showed that these nutritional problems are being widely investigated, and that the recent advances in the biochemistry of nutrition are being actively applied in clinical medicine.

A FAMILY WELFARE SERVICE

FOR those who like the idea of a growing population the prospects are brighter. The birth-rate in 1947—20·5 per 1000 population—was higher than in any year since 1921, and 38,000 more babies were born than in the earlier year. Nevertheless P.E.P.[1] feel that inducements to have children are not very great just now, and that the present rise will not be maintained unless a conscious policy to encourage parenthood is devised and followed. Family allowances have done a little, but there is a strong case, P.E.P. think, for raising the allowance from 5*s*. to 10*s*. a week for every child after the first. Their report glances, not enthusiastically, at the idea of allowances rising with the income of the parents; but they suggest that it might be possible to give tax rebates proportional to income, independent of the rate of tax.

At present to get the full allowance of £27 for a child the taxpayer must have an income of more than £125 clear of all deductions. Thus parents with an income of £400 a year get £27 for the first child; but the reduced rates cut the value of relief for the second child to £23 5*s*., and for the third to £16 10*s*. A rebate fixed at, say, 50% per child would allow the parents to count on an unchanging sum for each child; though it is noteworthy that in this case the parents would only recover £60 for three children instead of £66 15*s*.

They also recommend the introduction of low-interest marriage loans to enable young people to set up house, as soon as sufficient furniture and household appliances are available for them to buy. Meanwhile, they think maternity grants for the first baby should be raised from £4 to £15, and that special dockets should be issued to pregnant women for the purchase of "utility" baby-outfits.

To promote happy and successful family life, we need, they say, a Family Welfare Service, which would provide for free health examination before marriage, and for eugenic advice, marriage guidance, advice on birth control, and the treatment of involuntary childlessness. Medical examination before marriage would, they believe, be voluntarily sought on a wide scale if its importance for the welfare of the family was given good publicity, and if it was available gratis or at a low cost. Marriage guidance would also be a part of the service, which should itself be within the National Health Service—a proposal at variance with that of the Denning Committee on Matrimonial Causes, which held that a marriage welfare service should be sponsored by the State but should not be a State institution. To offer birth-control information, and advice on sound family planning, would be one of the duties of the Family Health Service, as well as advice on subfertility. The dissemination of contraceptive knowledge "presents society with a challenge to create social and economic conditions and a general atmosphere favourable to parenthood."

ACTIVE SPLENIC EXTRACTS

ATTEMPTS to prepare physiologically active extracts from the spleen have hitherto not been very convincing, and the isolation of two more such substances, assayed mainly by their effect on the bleeding-time in rats and guineapigs, may not at first sight seem important. However, Ungar's review [2] of his work on splenic extracts shows that in his hands the bleeding-time can be a reliable measure of biological activity and that the two compounds which he has isolated are of considerable interest.

The first substance, "splenin A," is formed in vitro in a medium containing ascorbic acid and splenic tissue. The pure substance, of probable formula $C_{18}H_{40}O_5$, is active in extraordinary dilutions (1×10^{-9} mg. per ml.) and when injected into a guineapig or rat reduces the bleeding-time and decreases capillary permeability; it also reduces the susceptibility of the red cells to lysis by a hæmolysin-complement system and increases the rate of association between trypsin and serum anti-protease. This substance, which is made exclusively by the spleen, is controlled by a chain of endocrine reactions passing from the pituitary through the adrenal cortex to the spleen. The blood-level of splenin A, demonstrated by its effect on the bleeding-time when injected into normal rats or guineapigs, rises after trauma. This effect does not occur if the animal experimented on has previously been submitted to hypophysectomy, adrenalectomy, or splenectomy. The injection of pituitary extracts will raise the blood-level of splenin A if the adrenals and spleen are present; adrenal extracts are active if the spleen is in situ, but only splenic extracts are effective after splenectomy. Ungar suggests that an increase in splenin A may be part of the general response of the organism to damaging stimuli described by Selye.[3] But splenin A apparently does not influence the course of this response, for though its injection before trauma prevents the appearance of disseminated hæmorrhagic lesions it does not alter the mortality-rate.

"Splenin B," whose effects are exactly opposed to those of splenin A, is formed in the spleen and bone-marrow and estimated by its power to lengthen the bleeding-time; it is absent from normal blood but large amounts can be demonstrated in scurvy, various hæmorrhagic and hæmolytic syndromes, acute rheumatism, and thyroid deficiency. Extracts from the spleen in experimental vitamin-C deficiency show a progressive decrease in splenin A and a parallel increase in splenin B. This, together with the fact that ascorbic acid can prevent the formation of splenin B, which occurs in vitro when splenic tissue is incubated with glycogen, suggests a normal balance in the formation of these substances. Although the injection of splenin B does not produce hæmorrhagic or hæmolytic disease it is tempting to associate the beneficial effects of splenectomy in hæmolytic anæmia and thrombocytopenic purpura with the removal of a potent source of this substance.

STUDENT HEALTH

THE drive for a comprehensive student health service [4] gains new impetus from a report by the health committee of the National Union of Students. Among 38 universities or university colleges, 57 training colleges, and 33 technical colleges, 42% require no medical examination or certificate on entry, 30% offer no advisory or remedial service, 36% have no arrangement for calling a medical officer, 39% do nothing about lodgings, and 69% make no provision against tuberculosis. The position at technical colleges is described as appalling: "the health of students in these institutions appears to be a matter of complete indifference to the authorities." The committee recommends periodic compulsory medical examination; treatment, however, should be voluntary. Full-time medical officers should be appointed; and small institutions might share the services of a single officer. Food and accommodation should be supervised. As regards physical training there should be swimming-baths, squash and tennis courts, and gymnasia "which many can enjoy without attaining expert status."

THE INDEX and title-page to Vol. II, 1947, which was completed with THE LANCET of Dec. 27, is now in preparation. A copy will be sent gratis to subscribers on receipt of a postcard addressed to the Manager of THE LANCET, 7, Adam Street, Adelphi, W.C.2. Subscribers who have not already indicated their desire to receive indexes regularly as published should do so now.

1. *Planning*, 1948, **14**, no. 278. From Political and Economic Planning, 16, Queen Anne's Gate, London, S.W.1.
2. Ungar, G. *J. Physiol. Path. gén.* 1947, **39**, 219.
3. Selye, H. *J. clin. Endocrinol.* 1946, **6**, 117.
4. See *Lancet*, 1947, ii, 949.

Special Articles

PLASTIC SURGERY IN YUGOSLAVIA

THE history of the UNRRA plastic-surgery units in Belgrade is the story of the introduction of plastic surgery and its associated special dental, anæsthetic, and nursing techniques into Yugoslavia between November, 1945, and January, 1947.

Preliminary discussions on the rôle of UNRRA relief services in the treatment of Yugoslav war-wounded took place in the spring of 1945, while the country was still partly under German occupation and the UNRRA Yugoslav mission was still in Italy. Sir Harold Gillies visited Belgrade at the request of UNRRA and of the Yugoslav medical authorities, and reported to the director of UNRRA health services in London that there were very many war casualties with injuries amenable to plastic repair but no facilities for their treatment.

It was therefore agreed that a hospital should be set aside in Belgrade for these patients, and that Yugoslav surgeons, anæsthetists, dental surgeons, and nurses should be trained there, the male teaching personnel being supplied from the E.M.S. plastic units.

The first team arrived in Belgrade on Nov. 4, 1945, as a completely self-contained unit of surgeon, anæsthetist, dental surgeon, theatre sister, ward sister, secretary, dental mechanic, and theatre technician. The first operation was performed on Nov. 13. The last member of the fourth team left Belgrade on Jan. 20, 1947, leaving the hospital and its staff equipped with the knowledge to continue unaided the development of plastic surgery and its associated specialties in Yugoslavia.

BEOGRADSKI TRGOVACKE HOSPITAL

This hospital was allocated by the Yugoslav medical authorities for the treatment of maxillofacial and plastic-surgery patients, both civil and military, and for the training of Yugoslav doctors and nurses by the UNRRA teams. It had been built about ten years before the war by a guild of city merchants for the sick and elderly members of the guild, and had been undamaged, except for the loss of windows.

The hospital is about $2^1/_2$ miles from the centre of Belgrade, on the outskirts of the city but within about a mile of the main aggregation of the buildings of the university hospital and of the civil and military hospitals. The design is modern; there are three floors, a good operating-theatre capable of working two tables simultaneously, a lift to the theatre, and a maximum of 150 beds. The wards are small, containing not more than 6 beds and many only 2. Though this arrangement added to the already considerable nursing difficulties, it had advantages in a hospital for plastic surgery because infection could be controlled to some extent by segregation. Dressing-rooms and bathrooms on each floor proved adequate for the treatment of ambulant patients; but those confined to bed had to have their dressings changed in the wards, owing to the absence of wheeled beds. This unsatisfactory state of affairs could only be condoned because in a hospital for plastic surgery a small proportion of the patients are confined to bed at any one time. Fortunately, the number of cases of recent burns treated was small.

A feature of the hospital was the large apsidal recreation-rooms at the south-western end of each floor, the convex walls of these rooms being entirely of glass. These rooms were most useful in spring, summer, and autumn; in winter it was impossible to heat them sufficiently and recreation facilities for the patients were somewhat limited.

The heating of a hospital in Belgrade must inevitably be a problem, since temperatures of −25°C are not uncommon and are likely to be accompanied by the Koshova, a penetrating north-easterly wind. Double windows and central heating are the rule in the city, but glass to replace that lost during the war is scarce, and owing to transport difficulties the supply of wood and coal is limited. During the winters of 1945–46 and 1946–47 great difficulty was experienced in maintaining the operating-theatre at a temperature at which surgery was safe, and operation lists had sometimes to be abandoned for this reason. The English staff were in some discomfort during these periods despite multiple layers of garments. Hot coffee, laced with the local Vodka, between operations, did much to maintain morale and the metabolic rate.

Small departments of radiological diagnosis, bacteriology, and physiotherapy were maintained in the hospital, the medical officers in charge visiting from other hospitals in Belgrade. The shortage of doctors, particularly of specialists, made full-time appointments impracticable.

METHODS OF TEACHING

The introduction of a new branch of surgery made it necessary to educate the Yugoslav hospital staff, doctors outside the hospital, and the general public. Education of the general public is particularly important in a country whose medical services are so scattered and so little organised. This policy was justified by the high proportion of patients who attended the hospital on their own initiative, often from remote parts of the country.

The training of the Yugoslav hospital staff followed the usual practice in England. A method was first demonstrated and then performed by the trainee with the assistance of the tutor; ultimately the more senior members of the Yugoslav staff were made responsible for training their less experienced colleagues. Thanks to the willingness with which all accepted our occasional criticisms of their methods or techniques, a satisfactory coöperation existed between the English and Yugoslav staffs despite the differences of language, ideology, and background.

Besides the usual methods of training, the English staff of the various UNRRA teams spent much time in the outpatient sessions held every afternoon. At these sessions we got some insight into the social conditions in the villages and country remote from the big towns.

The extraordinary poverty was notable; many peasants had travelled for two or three days in open carts or horse-drawn sleighs, the children in rags and covered for their journey with straw and hand-woven rugs which seemed poor protection against the biting north-east wind and a temperature of −25° or −30°C. The results of starvation, German occupation, and an inadequate medical service were daily brought to one's notice. On occasion starvation and the attendant shadow of typhus have been responsible for almost unbelievable losses of the facial soft tissues and skeleton, often in children so undersized that one could justifiably mistake a child of 8 for one of 4 years of age.

The instruction of the medical profession as a whole in the possible fields of usefulness of the newly established specialty was not in any way a labour, since the staffs of the hospitals of the area not only showed us the traditional Yugoslav hospitality but were delighted to discuss common problems and invite members of the teams to give demonstrations in their hospitals. Since the war, there has been a great growth of interest in the medical practices of the English-speaking countries, an interest which remains unsatisfied because of difficulties in arranging distribution of, and payment for, publications from this country and America.

Besides the visits of the English staff to the hospitals of Belgrade, a few visits have been made to hospitals in other Yugoslav cities. Such tours were always difficult because of the bad road conditions and the wholesale destruction of bridges, rolling stock, and railway lines during the war. Visitors came to the hospital from all parts of the country, many of them travelling at their own expense to spend part of their annual holiday in this way. We could receive no greater compliment than this from the members of a State medical service characterised by its poor salaries and inadequate leave.

The language difficulty did not present the obstacle to teaching that might have been expected. Partly because of the short period of service of any given member of the UNRRA teams, and partly because of the intrinsic difficulty of Serbo-Croat, most teaching in the hospital was done through an interpreter. Two interpreters, Yugoslav girls, were attached to the hospital; both spoke at least three languages besides English and Serbo-Croat, and both showed an astonishing ability in adapting technical words and phrases for which there was no Serbo-Croat equivalent. Further, they acquired an understanding of the purpose of plastic surgery and an appreciation of the mental attitude of the English staffs which made free phrase translation possible, in contrast to the laborious method of word translation. What success we have achieved is in no small measure due to the skill of these girls.

EQUIPMENT AND SUPPLIES

Owing to the wholesale destruction of medical equipment by the retreating enemy it was necessary to import all the equipment, both specialised and general, before work could be begun. Much of this had been obtained by UNRRA from ex-R.A.M.C. stores. It was dispatched by air and sea from England. Part of the initial equipment of the first team arrived in Belgrade nearly thirteen months overdue, having apparently toured most of Europe. Nevertheless, by the time the first team reached Belgrade, enough supplies had arrived to allow work to begin on a limited scale; and, supported by further supplies, ingenuity, and substitution, the work developed satisfactorily.

With the return of more normal conditions many of the routine consumable stores could be obtained in Belgrade, but all specialised material, particularly anæsthetic gases, had to be sent from England. This long-distance ordering was complicated by the difficulties of purchase in England and by the irregularities of transport.

RESULTS

Surgical Department

Two Yugoslav surgeons are now sufficiently trained to continue the training of their compatriots and to be responsible for the further development of plastic surgery in Yugoslavia. We were fortunate in acquiring these excellent candidates for training; both had had a good general surgical training before the war and experience of war surgery with the partisan army, and both rapidly developed the mental outlook and technical care essential for the plastic surgeon. Both of these surgeons had been attached to the hospital since its inception.

Five other surgeons have been attached to the hospital for periods of 4–10 months. Of these, one was transferred to Zagreb, the capital of Croatia, and is responsible for plastic surgery in a general surgical department of one of the large clinics. Of the remaining four it is too early to say which will continue with plastic surgery as a specialty. Besides these, who have been more or less permanently attached to the hospital, we have enjoyed a large audience among the surgeons of the country, who have attended the hospital for various periods as visitors. The steadily increasing number of cases referred from all over the country is evidence of the success of this proselytising.

Throughout the fifteen months of the period under review an English surgeon was attached to the hospital.

Anæsthetic Department

This has been a most successful venture. A great demand for and interest in general anæsthesia have been created among the surgeons of Belgrade and elsewhere, while the specialty has been established on a sound basis and is extending rapidly, though not quickly enough to meet the demand. This is inevitable, since the three anæsthetists responsible for the training programme rightly refused to sacrifice quality to quantity.

The anæsthetists attached to the first three plastic-surgery teams trained one full-time specialist anæsthetist, the first in Yugoslavia; one full-time anæsthetist, who has been studying in England with a British Council scholarship; and two part-time anæsthetists. After the last British anæsthetist returned to England in November, 1946, two new candidates for training were accepted, and we were much impressed by the quality of the teaching these postgraduates have received from their compatriots.

Though the numbers trained are not impressive at first sight, the wisdom of training a few anæsthetists thoroughly will become more evident later. In a country where there is a small but definite professional bias against modern general anæsthesia the opportunity for criticism must be reduced to a minimum.

Dental Department

Only the first two UNRRA teams had an English dental surgeon working with them. In May, 1946, it was decided that sufficient training had been given to the Yugoslav dental surgeon attached to the hospital to enable him to continue without further assistance. We had found him fully competent to deal with any dental or prosthetic problem which might arise, and since that time he has been responsible for training Yugoslav dental surgeons in the aspects of the specialty required for collaborating with a plastic surgeon. Each of these dental surgeons has his own dental mechanic, the first of these having been trained by the dental mechanic attached to the first team, and the second by his compatriot.

Besides these specialists, three dental surgeons have been attached for various periods to gain experience in the treatment of fractures and similar conditions.

AN AFRIKAANS INSTITUTE FOR PATHOLOGY

THE Union of South Africa already had two English-speaking medical faculties when, some years ago, the Afrikaans-speaking section (60%) of the population started planning a faculty in which the language would be Afrikaans. Through the efforts of its rector, Prof. M. C. Botha, the Pretoria University has now acquired what probably is the youngest medical faculty in the Empire, of which the new "Instituut vir Siektekunde" (Institute for Pathology), illustrated here, forms part. It has cost £150,000 to build and £20,000 to equip, and is under the directorship of the professor of pathology at the new medical faculty, Dr. Adrianus Pijper.

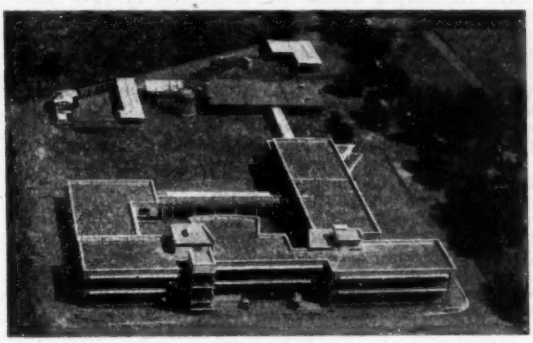
All pathology of Pretoria and environs (teaching, routine examinations, and research) is centred in the institute. Routine specimens come from the general hospital (800 beds) just across the street, at which students receive clinical training. Necropsy material from this hospital is examined in the institute, the necropsies being used for teaching pathological anatomy to students and providing material for the institute's museum, which is gradually being built up, in which task the South African Institute for Medical Research has been a great help.

The staff of the institute, apart from being pathologists to the hospital, are also pathologists to the municipal health department and the local mental hospital. From all these sources, supplemented by specimens from private practitioners, the institute receives quantities of material for teaching, and all these functions place the institute in the centre of medical activities of the town, which has a population of over 150,000 Europeans, Africans, and Indians. Besides the departments already mentioned, there are rooms set aside for taking specimens

from patients, medicolegal work, teaching public health, and collecting material for teaching tropical and parasitic diseases.

LAYOUT OF THE INSTITUTE

The building is somewhat U-shaped, with a connecting passage between the legs of the U. The legs are laboratories, and the central part is taken up by the students' departments, lecture-room, museum, library, and



Martin Gibbs, Pretoria

The Institute.

administrative offices. Some sections comprise three floors, one of them largely underground. The sections destined for students are separate from the routine and research laboratories, but the students cannot help noting the various activities in pathology that take place in the rest of the building, impressing them with the fact that pathology is a live subject and not just "dead-house" pathology.

The whole of the underground section apart from store-rooms is for necropsies. The post-mortem room itself is built as an amphitheatre, with the usual fittings and ample facilities for inspection by students of organs taken from the body. A refrigeration plant makes it possible to preserve a dozen bodies. Microscopical sections of organs from each necropsy are demonstrated to the students.

The greater part of the building serves the purpose of investigating and teaching conditions in sick people as they exist during life. On the ground floor there is one large lecture theatre seating 130 students. It has an epidiascope and a 16-mm. film projector. The students also have two large classrooms for practical work, each seating 70 students. The institute, notwithstanding war conditions, obtained 170 new microscopes. One of the classrooms is used exclusively for pathological anatomy, and every student not only receives his own set of slides but may use this room at any time that suits him, without supervision. Microscopical specimens are on view in this classroom. The other classroom is used for practical teaching in microbiology and simple biochemistry. As difficulty exists in obtaining textbooks, especially with illustrations, walls and pillars of this room have been covered with illustrations of microbes and apparatus, manifestations of diseases in skin and mucosæ, and similar pictures.

The course in pathology fills the entire third year and overlaps, so far as clinical pathology is concerned, the fourth year, when clinical instruction in the nearby hospital starts. There are about 100 students in each year; it is hoped this number will get less.

The laboratories are all placed in the wings, and they repeat a pattern of one fairly large room used by a lecturer, which connects direct with a much larger room in which two technical assistants are thus under constant supervision. The lecturer's room is equipped as a laboratory, and every lecturer is expected, apart from his teaching duties and supervision of routine investigations, to devote the rest of his time to some research subject. At the back of the building, connected with one of the wings by a covered passage, is a large stable for small laboratory animals. It has an operating-theatre and many small rooms, four of which are arranged for investigating specially dangerous microbes; these rooms have special sewerage and hermetically sealed doors. These doors and the windows can easily be sterilised. Next to the animal house are the gas plant and the "compound" for the native staff of cleaners.

Special features are that all steam sterilising is done in the open on a large South African "stoep" roofed by the floor above. Every room has two horizontal boards fixed flat to the walls all round at a height of about 4 and 5 feet respectively, for putting up shelving or attaching apparatus and notices. A blackboard fixed on the wall near the door serves as a perfect aide-mémoire to the occupants. Right through the laboratory every bench (wall benches and central benches) has an electric wall plug at every 3 ft. and a gas tap at every 6 ft. The town's supply is alternating current; in addition a motor dynamo in an underground room provides several rooms with adjustable direct current. Some of these rooms are intended for photography and photomicrography, and in one it is hoped to have an electron microscope.

Incubators and refrigerators are provided for some of the laboratory rooms only, but every floor has its own large incubating-room and refrigerating-room. Several dark-rooms, all with sluices and their own ventilators, are installed—partly for photography but also for spectroscopy, &c.

Inscriptions have been painted on doors and walls The students' entrance hall has the Hippocratic oath in Afrikaans on its walls—together with Hippocratic aphorisms both in the original Greek and in an Afrikaans translation. Doors carry appropriate quotations in various languages. Six pillars supporting the roof of the lecture theatre carry the names of famous pathologists; it is hoped to add portraits and appropriate pictures all round the building.

* * *

The Pretoria University has made a great effort in establishing this institute. Afrikaans-speaking young men and women can now avail themselves of new opportunities for pathological studies. There is a postgraduate laboratory waiting, and special small laboratories for thesis students have been provided. What is sadly lacking is an adequate supply of books and journals, and a good deal of borrowing has to be done. The American Legation has been very generous in providing journals and pamphlets, but very little has come from other sources. *A bon entendeur demi-mot suffit.*

STAFFING IN THE L.C.C. SERVICE

Dr. R. C. HARKNESS, the outgoing president, delivered his postponed presidential address to the Medical Society of the London County Council Service on Jan. 7, his subject being Medical Staff Problems, Past, Present, and Future.

Dr. Harkness adopted the chronological method, beginning with his personal experience after the first world war as medical superintendent of a municipal hospital in the north, where, with one junior assistant medical officer, he was responsible for some 350 hospital, 150 chronic mental, and some hundreds of "institution" beds. Translated to a metropolitan board of guardians' hospital, he dealt next with the administration of 670 beds with a medical staff of five, three of whom were engaged essentially for district medical work; and he paid tribute to the progressive spirit of his board, to whom, indeed, he had to give the old advice (not without topical application today) to hasten slowly. Great progress had been made by 1930, when the L.C.C. inherited the hospital and institution services of the board of guardians and Metropolitan Asylums Board,

which, with the mental hospitals service for which it was already responsible, became automatically the largest municipal hospital service in the world. Dr. Harkness became associated with the administration of this service, and he outlined some of its problems. Staffing structure was based on M.A.B. practice, the established (i.e., permanent) staff consisting of medical superintendent, deputy, and senior medical officers. The A.M.O.'s were unestablished, serving up to four years in this grade, when, unless promoted, their appointments ceased. The decision to run all the hospitals as a service was taken very early after the transfer; this, inter alia, facilitated a career in the hospital service. To obviate complaints of hardship, where admittedly good men had not secured posts on the established staff within the requisite four years, a "promotion list" procedure was introduced. At no time however were promotions confined to men on this list—scope was still left for the good junior—and in practice it gave rise to great difficulties.

The introduction of A.M.O.'s class II, in effect of houseman grade, took place in 1932. The consultant scheme—the consultants being strictly what the name implies and not in charge of beds—followed in 1933. The status of the consultant altered in 1937, when, partly to secure recognition of L.C.C. hospitals for D.R.C.O.G. training, &c., half-time consultants were introduced, and in consequence the council's administrative pundits felt that the grade of senior resident obstetrician should, on financial and other grounds, be abolished. This illustrates, incidentally, a problem which medical men engaged solely in clinical work are apt to overlook—the effect which administrative practice in other local and central government departments has on medical administration. Whether acceptable or not, this is inevitable.

The precedent of giving obstetricians and gynæcologists charge of beds was later extended to surgeons and physicians. A L.C.C. departmental committee on medical staffing in 1937–38 recommended further changes, the full implementation of which was prevented by the war. A similar committee appointed in 1946 made further recommendations, many of which are now being actively introduced. Great attention was given to the problem of devising staff structures suitable for functional units in medicine, surgery, pædiatrics, &c. One result has been a great increase in the number of specialist posts in the council's hospitals, but the basic principles on which the medical staffing structure was founded are still retained.

Turning to the future, Dr. Harkness remarked that it remained a field on which no-one could talk with confidence and authority. Salary scales, methods of appointment, size of establishments, equalisation of financial resources among the regions, and many other problems would take a long time to settle. To these general conundrums could be added smaller but more specific ones, such as the staffing of fever and tuberculosis hospitals. Nowhere were there greater variations in size and efficiency and nowhere were staffing difficulties, more particularly in the nursing branches, more pronounced.

Modern Hospitals

VI

HOSPITALS IN SWITZERLAND

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SWITZERLAND is a small country with a population of only 4¼ million; but it lies at the heart of Europe and has an industrious and inventive people. Its professional and technical leaders, bilingual if not multilingual, are by tradition heirs of the learning and participants in the practice of their great neighbours, Germany and France. In the work of hospitals and their planning and construction, leading doctors and architects have in recent years made a study of developments in Scandinavia and know the literature of the United States and the United Kingdom. They seek out what is best in other countries with independence of judgment, and their opinions are worthy of attention.

DISTRIBUTION AND OWNERSHIP

The Swiss Confederation is not strongly centralised. The former sovereign bodies which are thus loosely united—the cantons and half-cantons, 25 in number—with sturdy independence have retained most governmental rights and duties. The federal government has no health services and no hospitals. In its statistical yearbook it does, however, give a summary of the total hospital resources of the country. The last available issue in which the hospital tables are included, that for 1944,[1] shows that in 1942 there were 535 institutions classified as hospitals with 22,000 sick wards containing nearly 64,000 effective patient beds and over 4000 more in reserve. Other tables give the number of sick persons and of days of sickness under cantons and towns, and hospital personnel of different classes. One interesting table classifies the sick wards according to the number of contained patient beds, showing a high proportion of one-bed and two-bed wards.

The Swiss hospitals are owned by the cantons, the communes (cities and towns), and voluntary foundations. The cantons have one or more cantonspitals at the main centres; thus Zürich has a university cantonspital in the city of Zürich (population 380,000) and one other at Winterthür, a neighbouring town of 60,000 population. Out in the country are district hospitals provided by the cantons. The hospitals of the larger towns are independent of the cantonal governments. Voluntary bodies may provide the greater part of the local hospital service; an example of an ancient foundation is the Inselspital at Berne, which now has buildings belonging to the canton and to the city.

Switzerland has 7 universities—3 with instruction in German (Zürich, Basle, and Berne), 3 with instruction in French (Geneva, Lausanne, and Neuchâtel), and 1 bilingual (Fribourg). The first five named have medical faculties, and to foreign visitors the university hospitals make a special appeal since they possess the most comprehensive facilities and are at this time planning important new buildings. The proud tradition of self-sufficiency of the cantons demands that each of the 5 university hospitals is staffed and equipped to deal with all the rarer specialties, including radiotherapy, neurosurgery, and thoracic surgery, although in more populous countries the hospital planner would now restrict these departments to larger populations. The university hospitals and other large hospitals in the bigger towns do, however, serve as hospitals of reference for the people of the cantons which have no large towns and no complete medical centres.

SOME NOTABLE HOSPITALS

The *Bürgerspital, Basle*,[2] has attracted much notice from foreign observers because of its new medical and surgical block, one of the most striking in Europe, which was begun in 1939 and completed in October, 1945. This great building has 650 beds on seven patient floors, for to conserve the garden it was necessary to build upwards; in the judgment of some it is too large for the full play of personal values. Of much interest are other features such as the separate ground-floor kitchen, the system of underground tunnels through which electric motors haul trains of food trolleys from the kitchen to the various blocks, the diet restaurant for outpatients attached to the diet kitchen, and the supply of hot water at 180°C from the city refuse destructor 2 km. distant. The replacement of several other buildings is projected, and when completed the hospital will have about 1050 beds.

The *Zürich University Cantonspital* is another centre of pilgrimage, standing on a site in the city abutting on other important university buildings. Here the newest

1. Annuaire Statistique de la Suisse: Bureau fédéral de Statistique. 1944.

2. *Schweiz. Bauz.* 1946. **127**, 191, 203.

and most interesting building is that for the policlinics [3] for general medicine, ear, nose, and throat diseases, ophthalmology, neurology, and psychiatry. A new medical and surgical ward-block and a ward-block for special departments are projected. The ideas determining the uses and relations of the main buildings and their working-out on the site by addition and replacement are instructive. This has long been a famous Continental hospital.

At *Winterthür* the second Zürich cantonspital now has 400 beds. Here there is an ambitious programme of additions and replacements estimated to cost over 40 million Swiss francs.

The *Inselspital, Berne*, is a fine old hospital of 850 beds; the many separate buildings occupy an extensive site of 129,000 sq. m. The pavilions show the course of hospital planning in Switzerland, for they were erected during three eras—1882–86, 1896–1923, and 1924–36. The recent construction includes a large surgical block and a fine four-story building—the Loryspital—with 120 beds on two floors for the treatment of chronic diseases. A new medical policlinic building is projected.

The *Geneva University Hospital* has main buildings nearly 100 years old. An ad-hoc commission has presented a report [4] describing a number of alternative projects for the extension and replacement of the hospital buildings, which take account of recent experience at Basle and Zürich as well as in foreign countries. An existing feature of interest is a separate division of the hospital in a building off the main site, known as the Hôtel Beau-Séjour. Set in pleasant grounds, this has 250–300 beds and is used both as a recovery hospital and for incurables with rapidly advancing disease; Dr. J.-J. Moser states that it is the first annexe of its kind attached to a major acute hospital in Switzerland.

Other important hospitals of general or special interest could be named, such as the cantonspital at Lucerne, but these examples will suffice to show how actively new buildings are being planned and provided at main medical centres.

PRINCIPLES OF PLANNING

The earlier Swiss hospitals were built by men who were familiar with the German and French practice of the day and who adopted the pavilion style with its number of low buildings, spacious construction, general use of the corridor system, and laterally placed multi-bed wards of varying size and treatment rooms in the ward units. Under German influence the university hospitals were organised in separate "clinics" for medicine, surgery, gynæcology, and pædiatrics, each with its own chemical and biological laboratories—for current work, for research, and to some extent for the teaching of the student.[5]

The older hospital buildings conform to the general Continental pattern. But the better-known hospital planners in Switzerland today—both doctors and architects—are familiar with those trends in hospital planning which find their full expression in America. They are as well-informed on the newer principles of hospital construction as authorities in North America, in Scandinavia, and in this country.

At one end of the gamut of hospital design stands the monoblock of some American city hospitals. At the other end stand the many clinics and supporting buildings in ample grounds characteristic of the older German hospitals, and of hospitals in other countries modelled upon them such as the university hospital at Lünd and the city hospital of Malmö in South Sweden. The Swiss hospital planners dislike the rigidity of the monoblock, but they are sensible of the inconveniences of the full pavilion system. Accordingly, modern hospitals in Switzerland show varying forms between the monoblock and the pavilion systems; and as individualists the Swiss incline towards variety rather than uniformity. They favour a functional and mobile conception of planning with freedom for the hospital to adapt itself to changing needs and to grow, rather than a monumental and static conception.

Dr. Fietz, the architect of the university hospital in Zürich, uses the symbolism of a bunch of grapes to express the ability to grow, the variable form, and yet the unity of the parts which should characterise the buildings of a living hospital. The structure must also reflect the functional arrangement which individualism demands, that authority should be spread amongst a number of professional chiefs so that "each department can be a little empire." Thus they choose to limit strictly the number of beds for which even the major clinical professors are responsible, in that respect preferring the French practice to that in Germany where the professor may have up to 300–400 beds in his department. Rejection of this German habit springs from fundamental dislike of concentration of power determined on logical or ideological grounds, which in the professional world leads to personal friction.

The emphasis in organisation, which is reflected in structure, is on clinical rather than on administrative values. Thus the Swiss hospital planners do not readily accept the weight of argument put forward in America to justify vertical rather than horizontal construction. They reject the claim that vertical transport is more advantageous than horizontal transport; for, although it may be so from the point of view of the business man, they argue that it is not so from the professional point of view. Greater regard is paid to what will help the medical staff to work best for the patients than to what appeals to the hôtelier or hospital accountant as the most efficient method of organisation. More care is given to the arrangements for the medical supervision of the ward than has been customary in North America and in this country. Thus they prefer that each department under one chief should be as far as possible on the one floor for ease of supervision "with the eye." The size of the ward unit should be what one junior doctor can manage—"the spirit of the unit should be of the doctor." Fortunately this is found to be about the same size that is convenient as a nursing unit. In the medical clinics the number of beds would then be about 24; in large hospitals four such units would be supervised by a chief of clinic, and eight would form the whole department under the professor or clinical director.

PLANNING IN PRACTICE

The large hospitals are in the towns, for the Swiss hold that hospitals should be near the people to be served, and if university hospitals then near the university. The towns are not large (the only city with substantially over 100,000 people is Zürich); they are not smoky since electric power is largely used and there is little heavy industry; and they are not so covered with buildings as is common in this country and in North America. The Swiss, as becomes individualists, do not believe in very large hospitals.

The sites of hospitals were at the time of building generally ample, and when modern requirements call for more or greater buildings, they find, as at Zürich, Winterthür, Basle, Berne, and Geneva, that the balance of advantages lies in replacement and extension on the site rather than in building new hospitals farther from the centre. The hospital boards are not deterred by the inconveniences attending replacement, and it seems that the hospitals continue to work without interruption, since in each case the first stage is an extension which can take over the functions of the building next to be demolished, and so on, step by step.

The point of compromise between the dispersion in many pavilions and separate clinics of the old system and the concentration in monoblock or single articulated building of the steel-and-concrete era is consequently in part determined by the position and character of the

3. *Werk*, Nov. 11, 1946.
4. *Bull. tech. Suisse Romande*, Feb. 15, 1947.
5. Flexner, A. Medical Education. London, 1925; p. 211.

existing buildings that are to be preserved as well as by the physical characters of the site and its surroundings. Thus at Zürich and Basle there will be separate buildings for the main wards (medicine and surgery), the special-department wards, the policlinics, the domestic services, and staff quarters, for the most part linked roughly in quadrangular form; and the same is planned at Winterthür. For Geneva the expert commission, having examined the proposals of eleven different firms of architects under the headings of town planning, functional organisation, arrangement of departments, and architecture, recommend an articulation of buildings in "T" form which fits the site and which is built up of similar main units, each planned with its own outline.[1]

It is a cardinal principle of Swiss hospital planners that a different outline is required by buildings for main wards, for special wards, and for hospital personnel; therefore it follows that they seek to break up the hospital on the horizontal plane into a number of buildings, whether these be separated, or linked around quadrangles, or tied together by a central spine. (The same principle has been worked out by American architects in the vertical plane in such elegant tiered massifs as the Medical Center and the Cornell hospitals in New York City.)

The functional conception of construction is not incompatible with the concentration of engineering services in each building, and a proper regard for standardisation. Standard structural elements, such as were found so serviceable in this country during the war for hutted construction, are much employed. Such elements can serve very varied uses and do not restrict flexibility of design. Standardised service installations and standardised furniture and equipment are all favoured and developed with ingenuity. An example of enterprise in a main engineering service is the heating system of the Zürich university hospital. Heat is abstracted from the river Limmat by a heat pump and conveyed 2 km. to the hospital by water at a temperature of 180°C; a remarkable feature is that it is possible to obtain from the system some three times the heat which is put into it in the form of power to operate the pump.

The ward-blocks are generally designed on the central-corridor system, with patients' rooms on the south and service rooms on the north. Light and ventilation of the corridors are secured by bays between the latter, and some of the construction would satisfy the most fastidious British critic used to large cross-ventilated wards. The largest wards are for 6 or at most 8 patients, and there is a good proportion of smaller rooms. For example, the drawings for the new main ward-block at Winterthür show units of three 6-bed, four 2-bed, and one 1-bed wards, making 27 beds in all. Each unit has its own treatment room and each pair of units a dayroom. The other service rooms are much as in this country. The Swiss do not like plumbing between bedrooms, and the "sub-utility" rooms between small wards of contemporary American practice are not found, nor are automatic bedpan-flushing cabinets commonly installed.

THE POLICLINICS

The policlinics of the university hospitals must interest every visitor who is studying how the investigation and treatment of ambulant patients can be improved, how hospital beds can be protected from needless admissions, and how patients can be spared the "tragedy of hospitalisation"—to use the words of Prof. P. H. Rossier, director of the Zürich medical policlinic.

The policlinic is the clinic of the town (πόλις). (A term with a different etymology—polyclinic—has come into use in the English-speaking countries to describe a place for many (πολύς) people or diseases.) To the policlinics go those townspeople who cannot, or will not, get advice and treatment from private medical practitioners. Historically the policlinic is similar in function to the dispensaries for the sick poor from which treatment may be extended to the homes. At Zürich some 500 persons are still treated each year in their homes from the university policlinic. The work of such a Continental centre may be compared with that of the famous dispensaries in certain of the older American cities, such as that established at Boston in the year 1796 which still retains a much larger domiciliary practice. In this country the outpatient departments of many large city hospitals have provided immediate medical treatment for similar classes of the townspeople, but rarely domiciliary treatment.

The policlinic now performs two other important functions in addition to that of immediate treatment: it serves increasingly as a centre for consultation for patients referred from other departments in the hospital, and for patients sent up by medical practitioners from outside the hospital. There are separate policlinics for the major clinical branches which vary in their relation to the corresponding wards. The medical policlinic is the most important because it deals with the whole range of general medical disorders, has a much more detailed routine for investigation of patients, and is organised as a department separate from the inpatient medical clinic. It may have beds of its own for patients to stay one or two nights to facilitate investigation. The surgical policlinic is much smaller and is close to both casualty department and surgical wards. There are also policlinics for diseases of the ear, nose, and throat, for ophthalmology, and for neurology and psychiatry; these are closely associated in space and functionally with the corresponding inpatient departments. Gynæcology with obstetrics, and pædiatrics have also their own policlinics.

At Zürich the great new policlinic building is of four floors. One whole floor is occupied by the medical policlinic. At one end are the rooms for waiting and routine examination of patients; next come the rooms with laboratories and cubicles for special examinations; then come the director's rooms; and at the other end are the research laboratories. Above is a ward unit of 26 beds, which is an integral part of the medical policlinic. The ear, nose, and throat and eye policlinics, with similar rooms appropriate to their needs are also on upper floors, and connect directly with the wards of the same departments so that the examination and operation suites can be used in common. Below are the neurological and psychiatric policlinics, and rooms for common services including the dispensary, for social workers, and for student teaching.

The medical policlinic is designed for the following operations in sequence: (1) reception and waiting; (2) recording of general particulars, routine examination of urine, and taking of blood for Wassermann reaction and sedimentation-rate by nurses; (3) history-taking and physical examination by a medical officer (acting under the director) who remains thereafter the patient's "doctor"; (4) routine screening of the chest by the patient's "doctor"; (5) special examinations in the hæmatological, bacteriological, physiological, and other laboratories as may be required.

The rooms are arranged compactly and in sequence for ease of circulation so that the patient passes directly to the next person and is not bewildered by being sent distances about a large institution. The waiting-hall, of moderate size, is divided centrally into sections for men and women, and from here the patient passes immediately to the history-taking nurses' room, and thence to one of the 16 medical officers' rooms, 8 on each side, next to which suite is the X-ray screening-room. The laboratories for routine urine and blood tests are in the centre at the end, beyond the waiting-hall and between the two series of medical officers' rooms. These medical officers are men (or women) who have been qualified at least four years and have already had approved hospital training and are, for the most part, going on to be general practitioners. Students in the medical school take no part in the work of the medical policlinic, except that the professor gives systematic teaching on selected patients in the well-equipped lecture hall in the building.

Professor Rossier states that approximately 90% of the medical patients referred by outside practitioners are fully investigated and diagnosed, and the large majority of these treated without admission to hospital. (Inquiry shows that approximately the same proportion can be dealt with effectively at medical outpatient department in this country, but only in those that are strongly staffed and have the necessary specialist facilities.) The medical policlinic is not organised in separate "specialty" clinics since they seek to treat the patient and not the organ. Should the physician want information only to be obtained by some special procedure (such as bronchoscopy or cystoscopy) he would refer the patient to a member of the staff known to be technically expert at a particular method of examination. Similarly, he would show individual patients to members of the medical team having special interest in such cases. But the general physician would remain in charge and the patient would not be passed to a special cardiological, gastroenterological, diabetic, rheumatic, or other such clinic and thus become detached from the main current of medicine.

Public Health

An Attractive Report

ONE of the complaints that could be brought year after year against most of the annual reports of medical officers of health is that they are dull, uninspiring, and overloaded with figures in the text. In issuing a document which makes no appeal to the public the M.O.H. fails as a rule to make the best use of the powerful weapon in health education that has been placed in his hands.

The report on the health of Barking for the year 1946 is a brilliant exception to this rule. In the introductory letter to his council Dr. Leonard Williams, the M.O.H., says: "The form of my report has been designed to appeal not only to the members of the council, who have an inside knowledge of the working of the services, but also to a wider public." Dr. Williams deserves to succeed; his report is attractively printed and the salient headings are admirably picked out; the illustrations of mothers, clinics, and health services of every kind are well chosen and ought to have great educative value.

The graphs with which the book is illustrated are artless and effective and their lesson is crystal clear. As a supplement to the report Dr. G. S. Wigley, one of the medical officers on the staff, has given the results of an interesting investigation into the duration of breast-feeding in the borough and the reasons for failure. He puts forward a series of important recommendations for improving the present situation.

This report deserves publicity because it is an outstanding contribution to health education.

Transfer of Functions Under Food and Drugs Acts

By the Transfer of Functions (Food and Drugs) Order, 1948, which comes into operation on March 1, the Ministry of Food is to take the place of the Ministry of Health in becoming primarily responsible for the following matters under the Food and Drugs Acts, 1938 and 1944: (1) composition and description of food; (2) food inspection and hygiene generally; (3) the Milk and Dairies Regulations 1926–43, and the Milk (Special Designations) Regulations 1936–46, in relation to distributors and to the heat treatment of milk; and (4) the approval of the terms of appointment, &c., of public analysts. The Ministry of Food also takes over the functions now exercised by the Ministry of Agriculture and Fisheries under sections 33–35 and section 73 of the 1938 Act relating to margarine, &c., and sections 40 and 42 relating to the importation of certain foods.

These changes affect departmental functions only; the duties of local authorities are unaltered.

Poliomyelitis and Polioencephalitis

Notifications in the week ended Feb. 14 were: poliomyelitis 28 (25) and polioencephalitis 4 (6). Figures for the previous week are shown in parentheses. London, Devon, and Kent were the only counties which returned more than 3 cases under the two headings.

In England Now

A Running Commentary by Peripatetic Correspondents

IT was a wise decision of the Nuffield Foundation to establish fellowships in medicine for Dominion graduates who will teach or do research work when they return to their own country. The fellowships are intended to give men the opportunity of working as a member of a university clinical or research team, for by sharing in the work and responsibility of such a team they will come into close contact with the British people and British medicine. The fever of "multiple diplomatosis" is sweeping England just now, but the Foundation discourages diploma-hunting among its fellows. The value of attending lectures, set clinics, or cram classes is small compared with working in a clinic as one of the unit.

I joined a professorial unit in a large provincial city, where the team spirit was firmly built on mutual trust and respect. The professor was a first-class teacher, an able organiser, a lucid and original thinker, and a man with a magnetic personality. One would have needed to be very insensitive not to absorb some of his enthusiasm, ideas, and ideals. He lived opposite a park through which I passed on my way to and from the hospital and at times I stopped to watch the local bowlers on the bowling-green. One day I fell into conversation with one of them. "Great game this, sir," he said, "do you play?" I confessed that I did not as I was still in the thirties. "Can't start too young, sir," he replied. "Look at me. I started at fourteen and have been playing over fifty years." He was a shrewd observant little man and in a very short time had found out where I came from and that I was working with Professor X. At the mention of this name his face lit up. "A great family man, sir, and a great doctor," he exclaimed. "He cured my little boy when he was given up for dead." A pained look came over his face, and for a moment I thought the boy must have died later, or at least been sent to Borstal. His voice became hushed and sorrowful. "You know, sir," he said "his only fault is that he don't bowl."

* * *

I was a little startled on being asked by a village priest in the south of Hungary a few months ago whether it was true that the Anglican Church objected to anæsthesia in childbirth. On being assured that opposition from that quarter had ceased a great many years ago, he said he had thought it must be only a rumour, as he knew that the Anglicans were more liberal in such matters than his own church; and yet he had always taught "his school-children" that children are such a source of pain and sorrow to their parents all their lives that no-one could object to their mothers being relieved of a little pain during their production. I am still wondering whether the interpreter really got his argument right.

* * *

I understand that the first act of the Minister of Health, when inaugurating the new National Health Service, will be to send a drove of doctors round the countryside dressed in different hues, so that the public can choose their regional colours. In these colours the new doctors will blossom forth, with car, bandages, medicine-bottle labels, and, where possible, medicines, to match.

* * *

I wish I could get tits to open our milk bottles. In my experience the "lift to open" tongue of the cardboard cap inevitably pulls off, and when I try and push my finger into the hole in the cap I get a spurt of milk in the face. Do tits have the same trouble? By now Messrs. Fisher and Hinde will know, and I hope THE LANCET will publish their findings.

* * *

From my window I can see the mainland across the water. It starts as a hundred islands, close inshore, and then climbs clear of the sea and rolls away in folds of adolescent hills, off to the back of time. In certain lights it is Scotland, and so it was tonight. The sky and the hills were every shade of purple-grey, and the sea was silver. A river boat making filthy smoke lay

in the mouth of a firth. The smoke looked thoroughly British.

There is loveliness in many lands, but the best is that which smiles an almost English smile. Why do we ever leave?

* * *

Since Registration, WILLIAM HAY
Thought nothing of the B.M.A.
It sent him Chits, "Beware, my friend!
BEVAN will get you in the End."
On Thursday Rounds the *Great White Chief*
Opined that it was past Belief
That one Brought Up within the Fold
Should be so Prematurely Bold.
For all the Learning he Imbibed
He still improperly described
The Democratic Show of Hands
By reference to Certain Glands,
Remarking "Drains to Doctor HILL,
It is my Duty, and I will.
I do not give a Farthing Kite
For any Sanguine Plebiscite."
He would not heed, he took the Bait,
Became a Servant of the State,
And worthy Colleagues cried "Too Late"
And chalked Rude Words upon his Gate.

Now turn the Page, see Doctor HAY
Awaiting the Appointed Day.
He bought a Bulldog, put to Flight
Physicians who approached at Night
To bomb his House, abduct his Wife,
Or Curarise his Table Knife.
The Day came round. The Plan came in.

Now Doctor HAY was somewhat thin,
(Not that he ailed—his Father had
Been known as Skidge in Hyderabad)
But after the Appointed Day
He fattened in a startling Way:
His patients who survived the Shock
Addressed him as the Radio Doc—
Inflated till he could not see
The Bursa on his own Left Knee.
His Colleagues, starving in their Garrets,
Repeated like Infected Parrots
That Socialism, one fine Day,
Would be the Death of Doctor HAY.
The Truth was simpler than they knew.
When Doctor HAY received his screw
Eight Million Pounds, Nineteen and Seven
Pence Only, Signed, ANEURIN BEVAN,
He sent it back in Righteous Terror,
Inscribed "An Arithmetic Error?"
But no. For back it came. It seemed
The figure that he thought he'd dreamed
Was accurately estimated
Consisting of the Items Stated . . . :
At last it dawned on Doctor HAY
That ever since the Appointed Day
He *was* the Service—on his own!
The fee was his and his alone:
Since no-one else was Taking Any
He got the Rhino, every Penny!

And still he grew, until at last
His bloated Corporation passed
The limit of his Surface Tension—
Such Pathological Distension
As WILLIAM'S waistcoat hardly hid
Could only end as end it did.
One day in August, bending down
To tie his shoe in Kentish Town,
He strained toward his Hidden Feet
And burst, demolishing the Street.

Moral

Learn from the Fate of Doctor HAY
The Omniscience of the B.M.A.
And do not, in your Youthful Zest,
Forget that Doctor HILL knows best—
A Blackleg ever lacks a Friend
And finds it Most Unsafe to Bend.

Letters to the Editor

SELECTION OF MEDICAL STUDENTS

SIR,—Up to 1940, in most schools candidates of approved educational standard were free to enter without further selection. The privileged position of the student in war-time and the increased use of the educational ladder have, however, brought so many to our doors that schools are faced with the difficult problem of selection. On the success with which this is carried out the constitution of the future profession depends.

At the present time many examiners are disturbed by the poor general educational standard of many students at the final examination. To some extent disturbance of training due to the war may be responsible; but the trouble would appear to go deeper than this, and school training and artificial selection are two factors which may account for some of our present weaknesses. Much might be said in criticism of the hazards which the able student has to overcome on the road from a primary school to medical graduation. At a recent conference on university education the Master of Balliol observed that "those that climbed this ladder came up to the university completely worn out. In comparison a boy who had not had to struggle tended to be far better educated." Other speakers at the conference were equally concerned by the dire effects of the scholarship system and by the impairment of general education through the specialisation which accompanies it.

Added to all this, the student now has to face the hazards of the selection board. Individual medical schools have sought their own solutions, and no common policy has been evolved. Selection, the methods of which are still experimental, is made partly on the candidate's educational background and school reports, and partly through an interview by either one person or a small committee. For each school the responsibility is heavy. Often three or four candidates have to be rejected for each one accepted; the work is time-consuming and calls for wide experience, aptitude, and judgment. If human error and bias are to be eliminated it would appear desirable that the result of the interview should never depend on one person alone but should rest on the findings of a committee of at least three.

In spite of all safeguards mistakes will sometimes be made. This is particularly so in the selection of medical students, for as Prof. C. F. W. Smout points out in a recent report on selection at Birmingham University: "In every other Faculty in the University a student develops subjects he has commenced at school, but in medicine the student is constantly exploring new fields and no one can forecast what the issue will be."

If selection is to become a permanent practice, the present somewhat disconnected attempts to establish a satisfactory technique should be coördinated in the light of experience; and further consideration should be given to selection by vocational and psychological tests.

Birmingham. SEYMOUR BARLING.

MISTAKES WITH INJECTION SOLUTIONS

SIR,—Mr. Harold Dodd's letter of Feb. 7 raises some interesting points. Undoubtedly much can be done to avoid errors by a rational and unambiguous system of labelling; and a committee set up by the Ministry of Health has recently published recommendations for the labelling of ampoules of anæsthetic drugs.[1]

The desirability of avoiding gummed labels on ampoules is generally acknowledged; and machines which will print directly on glass can now be had at reasonable cost. Use of this method would eliminate danger through labels becoming detached. A further safeguard would be for commercial firms to use pharmacopœial names in their labelling instead of coining new names for established preparations.

The suggestion of tinting injection preparations with different colours does not seem very practicable, since surgeons would have to learn the colour of each preparation and the method could not be applied to substances which have to be protected from the light by amber

1. *Pharm. J.* Jan. 24, p. 54.

bottles. Moreover, the range of colour in suitable dyes is limited, and the use of minor shade differences might lead to confusion in those whose colour perception is not acute.

With regard to the labelling of rubber-capped multiple-dose containers, I suggest that the label should be headed "Injection Solution" or "Intravenous Solution" as the case may be, followed by the *B.P.* name in large letters. Solutions not intended for injection should never be placed in bottles similar to those for injection solutions, and local anæsthetics intended for topical use should be clearly marked "Topical Solution—Not for Injection." In both the above cases the use of different-coloured labels might be an additional safeguard.

The final essential in the avoidance of errors is to check the label of any drug used, and to discard any preparation when there is the slightest doubt about its identity.

T. D. WHITTET
University College Hospital, London. Chief Pharmacist.

SUFFOCATION BY MILK FEEDS

SIR,—In connexion with your annotation on Feb. 14, you may care to publish the following observations.

The records of the Leeds coroner's court show that in the years 1945–47 21 infants, aged nine months or less, died of inhalation of vomit; the annual incidence was 6%, 9%, and 15% respectively, of all deaths of infants, excluding stillbirths, examined at the city mortuary during these three years. The depositions suggest that the same cause was responsible for the deaths of at least another 10 infants, where the cause of asphyxia was either not ascertained, or was reported to be some other factor such as convulsions.

When our attention was first drawn to this increase, in January, 1948, it was thought to be explained by the transfer of the autopsy practice to trained pathologists. It now appears, according to a statement of a Ministry of Health official reported in the *Yorkshire Evening Post* of Jan. 31, that the increase may be part of a general increase in these deaths. According to that statement:

> "In 1935 230 infants under 12 months died from accidental causes, and 59 of these were from suffocations due to application of food by bottle. In 1945 there were 407 deaths, 183 of which were attributable to food regurgitation and suffocation."

The Leeds series is small, and time has not permitted detailed inquiries; but from the available evidence certain factors appear to be relevant.

1. The majority of the infants came from homes of parents in the low income groups.

2. The age of eleven of the mothers ranged from 22 to 35 years; and the average was 26.

3. It is probable that most were first-born infants, or were born within a year of an elder child. On the other hand, 1 was the ninth in the family.

4. In a second group, soft feather pillows were responsible in 2, and probably responsible in another 4, deaths. Head shawls (1 case) can also prevent the free escape of vomit and predispose to its inhalation.

5. On 7 occasions, the records state, the infants had been crying during the hours preceding their deaths. This may have been due to illness or—more probably—to discomfort, especially from "wind." Disease (enteritis) was present in only 1 of 21 cases.

6. Some of the infants were described as "windy," or prone to retch or vomit after feeds, or they were "greedy feeders."

7. In 1 case it was admitted that the infant had been fed whilst lying down; and it appears a common practice to allow infants to suckle at the bottle when laid in their prams or cots.

8. Deaths of infants from inhalation of vomit have occurred, in our experience, in institutions, and we are credibly informed that the shortage of trained staff gives rise to anxiety on this account.

9. The stomach contents, several hours after the last feed, were distinctly in excess of what was ordinarily to be expected. There was no anatomical evidence of gastric disease.

10. The kind of food was recorded in 16 cases; and of these, 9 had had national dried milk, 4 had had 'Ostermilk,' while 3 (of which 1 had supplementary feeds of cow's milk and water) were breast-fed. The predominance of one kind of dried milk is ascribable, in all probability, to its low cost and not to any inherent property of the substance. Gardner [1] found a predominance of artificially fed infants amongst his cases.

11. The preparation of artificial milk foods must be carefully performed if lumps are to be avoided. When present in the feed, they may quite possibly be ingested by the infant if the teat is worn or its opening is deliberately enlarged; in this event, the teat may have a slit about 0·5 cm. in length, through which lumps could be sucked. We have no information to show whether the ingestion of lumps is in any way injurious and provocative of vomiting.

Although, as you rightly say, Sir, this is no new disaster, it continues to recur, and apparently with increasing frequency. In our opinion, many of these deaths appear preventable, and therefore an inquiry seems worth while. Satisfactory conclusions, however, can only be drawn from the pooled experience of several centres, and from a coördinated investigation, in which pædiatricians and those responsible for infant welfare can achieve more than pathologists, who can only prove the cause of these deaths and draw attention to the frequency of their occurrence.

We thank Dr. A. J. Swanton, the City of Leeds coroner, for permission to examine and quote his records.

Department of Forensic Medicine, University of Leeds, C. J. POLSON D. E. PRICE.

NOMENCLATURE OF RH FACTORS

SIR,—As far as I can determine from the medical literature, the consensus is that the original designations of the Rh types as rh, rh′, rh″, rh′rh″, Rh_0, Rh_1 (or Rh_z), Rh_2 (or Rh_y), and Rh_1Rh_2, based on the designation of the three common Rh antisera as anti-Rh_0, anti-rh′, and anti-rh″, should be the standard nomenclature. Some workers use in addition certain alternative designations, involving the letters, C, D, and E. I maintain that such a duplicate method of designation is entirely unnecessary and will only cause confusion. Experience with the four Landsteiner blood-groups has already proved that confusion is avoided only by the use of a single rational and descriptive nomenclature.

The attraction of notations using symbols like XYZxyz or $Rh_{1234}{}_{56}$, instead of the rational symbols Rh_0, rh′, rh″, hr′, and hr″ (evidence for Hr_0 has still not been published), can be explained as follows. Obviously, to people who do not know the blood-groups and are not required to understand them, notations like I, II, III, and IV are much easier to remember than O, A, B, and AB. In the former case one has but to learn that there are four blood-groups, because one presumably is familiar with the Roman numerals I to IV. To remember O, A, B, and AB, on the other hand, one is compelled to learn that there are two substances, A and B, in the blood which form four combinations. This additional effort is quickly repaid, however, in the case of laboratory workers who must be familiar with Landsteiner's rule concerning the reciprocal relationship of agglutinogens and agglutinins, and also for medicolegal experts, to whom, for example, the statement that parents of groups O and AB can only have children of groups A and B is more intelligible than the announcement that I × IV can yield only II and III. Similarly, it seems easier to "learn" that there are three factors, $Rh_1Rh_2Rh_3$ or XYZ, than that there are three factors, Rh_0, rh′, and rh″. Actually, by taking a little extra trouble to understand the original and only rational nomenclature one learns at the same time of the special serological, genetic, and clinical position of factor Rh_0, and that rh′ and rh″ are related very much as A and B are to each other. Thus, by applying what one already knows of the four blood-groups, one *immediately* knows the eight Rh types, while those using designations like XYZ must start from the beginning and never really grasp the subject. It is easy to see, for example, why the mating rh × Rh_1Rh_2 yields almost 50% type Rh_1 and 50% Rh_2 children with only rare children of types rh′ and rh″; but this is completely unintelligible when written as Neg. × Rh_{123} or xyz × XYZ.

In addition, the symbol "Rh" has an important descriptive significance, indicating the origin of our knowledge of this antigen through the study by Landsteiner and Wiener of immune sera prepared by immunising experimental animals with blood of rhesus

1. Gardner, E. *Med.-leg. Rev.* 1942, **10**, 120.

monkeys; which antisera, these workers found, also agglutinate the bloods of about 85% of Caucasian individuals. It was because the antisera were first prepared with the blood of rhesus monkeys that the symbol Rh (the first two letters of the name Rhesus) was chosen to designate the antigen, while anti-Rh was the natural name for the corresponding antiserum. When, with the aid of antisera of human origin, it was later discovered that there are other related antigens in human blood, it was only natural that names be selected for these antigens which showed their relationship to the Rh_0 antigen originally discovered by Landsteiner and Wiener, but at the same time indicated their characteristic differences.

One final point which everyone seems to have overlooked is that as early as 1942, when only Rh_0 and rh′ had been found by me, I considered the possibility that these factors might be transmitted by genes that were linked, independent, or allelic.[1] When statistical analysis of the available data proved that the hypotheses of linked and independent genes were incorrect, we explained the hereditary transmission of the four Rh types known at that time by postulating the existence of four allelic genes. When later rh″ was found, it hardly seemed necessary to repeat the evidence against linkage and independent assortment, and so the theory was merely extended to include six standard allelic genes, to which British workers added the seventh and rarest gene R^z. Thus, Fisher's theory, besides being wrong, is not original since it had been considered and discarded by me more than two years before he proposed it. Incidentally, based on the theory of multiple allelic genes, the existence of type rh′rh″ and its frequency of only about 1 in 10,000 was predicted by me and later confirmed. Also the existence of factor rh‴ was predicted by me, only to be confirmed by Callender and Race in England, who named it c^v.

In conclusion, it should be apparent from the foregoing that the assertion made by some workers that the adoption of Fisher's notations will "clarify" the nomenclature "problem" is based on incorrect and incomplete information. Actually there is no nomenclature "problem" except the one that would be created by the unnecessary introduction of duplicate or triplicate systems of notations.

ALEXANDER S. WIENER.

Office of the Chief Medical Examiner,
New York, N.Y.

BRONCHIAL CARCINOMA PRESENTING AS POLYNEURITIS

SIR,—The contribution by Dr. Wyburn-Mason (Feb. 7) makes very interesting reading.

No-one can quarrel with his grouping of the possible causes of the polyneuritis under four main headings: (1) involvement of endoneural and perineural lymphatics of peripheral nerves by extension of the growth; (2) implantation of tumour cells in the intrathecal portion of the spine (via metastases in the brain, &c.); (3) "toxic" or "metabolic" disturbance similar to polyneuritis from other causes; and (4) reflexly from the lungs. The last-named mechanism is that favoured by Wyburn-Mason. The first two possibilities are discussed at some length and dismissed, quite rightly, because they have been ruled out by careful histological examination. The third possibility is discounted because "in the early stages of the cases described there was no suggestion of any toxic or metabolic disturbance which might cause the symptoms"—a statement which has to be reconciled with the observation that "he lost 2–3 stone in the last four months before admission."

We know that in trigeminal neuralgia violent impulses sufficient to cause trophic changes leave the nerve singularly unaffected; and one tends, therefore, to question a reflex which results in inflammation and degeneration of peripheral nerves (literally from head to toe) and leaves the cord untouched. The analogy that hypertrophic pulmonary osteo-arthropathy is also a reflex phenomenon opens up a debatable subject. "In two cases known to me," the author says, "mere ligature of the pulmonary artery without removal of the lung had the same immediate effect"—i.e., dramatic relief—and "this shows that the changes in the tissues are not due to 'toxic' absorption or anoxia, which would be increased by this procedure." Now anoxia, par excellence, is seen in congenital heart disease with cyanosis and so is "clubbing"; yet, although "clubbing" is generally accepted as the first stage of hypertrophic pulmonary osteo-arthropathy, the latter is but rarely seen in this form of heart disease. It often develops, however, in certain lung conditions, particularly when associated with sepsis. The argument that tying the pulmonary artery (thereby "cutting off" the affected lung) would result in increased "toxic" absorption is difficult to follow. Pierre Marie's original hypothesis of a liberated "toxin" may not meet all criticisms but cannot be so easily dismissed. All we are entitled to say is that the conditions are somewhat analogous to those in "crush syndrome" and essential hypertension. However, we do know that peripheral neuritis in bronchial carcinoma does not differ essentially from that due to toxic or metabolic causes; if not, why bring in a reflex theory?

What is more worrying to the clinician than the question of ætiology is the apparent difficulty of early diagnosis with no chest symptoms and possibly with a negative "straight" X ray. Does it mean, then, that every middle-aged man with polyneuritis should be bronchographed, if not bronchoscoped? It will be noted that all cases were lumbar-punctured—which was desirable because of the presenting symptoms and inevitable in the precincts of the National Hospital. (We need not pay too much attention to the canard that the lady almoner takes the cerebrospinal fluid as a routine with other particulars.)

Without any desire to be critical, may I enter a plea for the simple, non-specific, test known as the erythrocyte-sedimentation rate? Surely, in these cases, it would yield more valuable information than even lumbar puncture and might enable the process of detailed chest investigation to be started long before the appearance of terminal signs and symptoms.

London, W.1. DAVID PREISKEL.

CAROTID LIGATION

SIR,—Your leading article on Nov. 22, although giving an otherwise excellent survey of the recent literature on carotid ligation, failed to mention several valuable contributions in this field by Professor Krayenbühl,[1] who has reviewed the results of carotid ligation in 35 cases of intracranial aneurysm.[2] His series of cases, in addition to being one of the most extensive yet reported from any clinic, is further notable because neuropsychiatric studies, as well as the usual detailed neurological examinations, were made on 14 of the patients in an effort to assess the effects of carotid occlusion, particularly on the mental status of the patient. This represents an attempt to apply a test of somewhat finer grain to estimate the postoperative cerebral changes than appears to have been generally adopted in any comparable series of patients. It is perhaps of some interest that, in Professor Krayenbühl's experience, carotid ligation for supraclinoid aneurysm seems far less dangerous than is suggested by the results either of Olivecrona or of Schorstein.

It may also be worth while to point out that the potentialities of electroencephalography (E.E.G.) as a means of gauging the patient's tolerance to carotid ligation cannot be said to have been as yet adequately exploited. Although Lambert Rogers and several other authors have now reported instances in which E.E.G. investigation was done on patients in whom carotid ligation was performed, according to the recent review of Chusid and de Gutierrez-Mahoney[3] no case with serious complications following carotid ligation appears to have yet been available for E.E.G. study. The value of E.E.G., however, as a reliable and sensitive indicator of changes in cerebral function as induced, for example, by anoxia and ischæmia is now well founded on both experimental and clinical grounds. It would be surprising, therefore, if this procedure did not prove a useful adjunct in the

1. Wiener, A. S. Blood Groups and Transfusion. 3rd ed., Springfield, Illinois, 1943; p. 254.

1. Krayenbühl, H. *Schweiz. Arch. Neurol. Psychiat.* 1941, **47**, 155; Krayenbühl, H., Stolba, R. *Confinia neurol.* 1945, **6**, 6.
2. Krayenbühl, H. *Schweiz. med. Wschr.* 1946, **76**, 908.
3. Chusid, J. G., de Gutierrez-Mahoney, C. G. *J. Neurosurg.* 1947 **4**, 86.

preoperative investigation of the patient about to be submitted to carotid ligation. Moreover, that the usefulness of E.E.G. in this rôle should be more definitely determined is of considerable importance for several reasons. Among these is the fact that the carotid compression test, as your article mentions, is often unreliable, and there is so far no well-proven alternative method to take its place. Furthermore, certain types of intracranial vascular lesions which are perhaps best treated by carotid ligation are becoming more commonly disclosed through the increasing use of cerebral angiography. For example, some 150 cases have been reported in the literature in which carotid ligation was applied as a method of treating intracranial aneurysms and arteriovenous fistulæ. Some of the most striking successes have indeed often been obtained in patients with an intracranial arterial aneurysm, which even so courageous a surgeon as Harvey Cushing [4] once described as "a lesion having such remote surgical bearings."

Cumnor, near Oxford. WILLIAM H. FEINDEL.

HOW SULPHONAMIDES ACT

SIR,—In supplement to the article by Professor O'Meara, Dr. McNally, and Dr. Nelson in your issue of Nov. 22, may I suggest yet another way in which utilisation of reductone and its combination with *p*-aminobenzoic acid to form reductone-*p*-aminobenzoic acid (R-P.A.B.) may be interfered with?

Professor O'Meara and his colleagues observed that ascorbic acid forms condensation products with *p*-aminobenzoic acid and with the sulphonamides in vitro. May it not be that ascorbic acid (A.A.) when available in *sufficient* quantities in vivo would compete for the *p*-aminobenzoic acid (P.A.B.) present in the body to form the condensation compound A.A.-P.A.B. in place of R-P.A.B.? Furthermore, the presence of excessive amounts of a dienol compound so reactive as ascorbic acid may have a toxic effect on the bacterial cell similar to that of free glucoreductone and of other reactive bacterial metabolites.

Clinically I have observed the remarkable effect in halting an acute infection of saturating the patient with ascorbic acid at the earliest possible stage. Two ways of practical application suggest themselves:

1. If a case comes under treatment sufficiently early—i.e., before a general spread of the infection has set in—large doses of ascorbic acid are given, such as an initial dose of 500 mg. within the first few hours of treatment and followed by saturating doses. The A.A. would compete with reductone for the P.A.B. present, and would thus interfere with the multiplication of bacteria during the logarithmic phase. The giving of sulphonamides as a routine could, therefore, be avoided in such early cases.

2. If infection has already become generalised sulphamerazine and 'Sulphamezathine' (there appears to be no justification for the clinical use of older sulphonamides since these safer drugs are available) are used either singly or in combination as a mixture.[5] Ascorbic acid is given simultaneously, either by mouth or parenterally, in doses sufficient to saturate the patient at the earliest possible moment. Considering the relative speeds with which condensation compounds are formed, a double effect would be achieved: the sulphonamides administered would be used up in the formation of the reductone-sulphonamide compound, and P.A.B. present would subsequently be tied up as A.A.-P.A.B.

For the last three years I have given sulphamezathine (I.C.I.) and large doses of ascorbic acid, combined with vitamin A and other measures, in cases of acute infection with sulphonamide-sensitive organisms. There has been a complete absence of the usual complications of acute infections in every case. This remarkable experience appears to have a possible explanation in the above suggestions.

The rationale for the simultaneous exhibition of large doses of vitamin A (in the region of 100,000 units per day), incidentally, has been to saturate with this vitamin that bastion of the body's defence mechanisms, the reticulo-endothelial system, and to ameliorate the condition of the epithelial surfaces of the body.

Bracknell, Berks. B. L. FRANK.

4. Cushing, H. *Guy's Hosp. Rep.* 1923, **73**, 159.
5. Lehr, D. *Brit. med. J.* 1947, ii, 943.

WHAT IS NURSING?

SIR,—Many of the suggestions in your leader of Jan. 10 are futile. If they were discussed, as I have already discussed them, with a successful working matron, she would readily point out their fallacies and impossibilities.

There is only one fundamental reason for the lack of enough nurses, and that is *marriage*. In the figures you quote 30% left on getting married, and I can assure you that of the 42% who became pupil midwives probably an equal or higher proportion married at the end of their training period. Our own investigations here, usually carried out yearly or in alternate years, show that 50–75% of nurses marry and leave nursing between the time they take it up and one year after qualifying. Of those still in, most get married within a few years. The wastage during the first few months is an index of the efficiency or otherwise of the specific training school to appeal to the nurse—a high wastage reflects directly upon the administration.

You say that the King's Fund has been able to add an important new study; this is not new to those of us who are engrossed in the question of nursing and have the coöperation of intelligent and up-to-date nursing matrons.

You do not mention male nurses. All training schools, including children's hospitals and hospitals for infectious diseases, should take them. Each man trained equals at least 6 female probationers because he will remain in nursing all his life. Male nurses should be used for district work and in every branch of nursing. In this hospital they do children's nursing, and I have been agitating for them to be given midwifery training. In the *Sunday Express* (Jan. 11) a note appeared to the effect that in Manchester male nurses employed on district work who had been given emergency midwifery training had proved so successful that their numbers were to be augmented.

You say "the idea of employing qualified married nurses on a part-time rota in training schools has never been considered." We have employed them here for many years, and my matron, who has been here for 6 years, tells me that she was employing them in London 9 years ago.

We here allow any of our nurses, student or qualified, senior or junior, to live out of hospital, either at home or in billets provided by the hospital, for which we pay; the nurse receives the resident allowances. It does not make a great deal of difference in recruitment: a few are kept in nursing and are attracted to nursing by these manœuvres, but the fundamental reason for girls giving up nursing is that they get married and when they have a family they no longer desire to work. Until a family appears they are quite willing to carry on, on a part-time or full-time basis. All these factors have been known here for many years and we have put them into practice. You may think it is because of this that our numbers have gone up from 85 ten years ago to 240 now, with the same number of beds but with a greatly increased turnover to deal with: I agree with you. I think it is because so many hospitals and their organisations are so rigid and out of date that difficulties still persist.

This nursing problem appears to be a complex one but is in fact not so difficult on analysis. The need is for more male nurses; less insistence on the educational standard of nurses on admission, so long as they have it in them to be good practical nurses; and the avoidance of administrative and disciplinary measures which have been traditional and which had not yet been given up in certain hospitals. I recently visited one large training school where I was assured the matron refused to tolerate a married student, and any student who got married was immediately dismissed even if she was willing to continue her training. Again, some hospitals refuse to recruit nurses from their own locality. The problem I think will solve itself when the school leaving-age is raised to 16, and "the gap" is practically eliminated.

My last point is working time: 40 hours weekly, including study time, is surely quite enough for young girls.

H. I. DEITCH
General Hospital, Halifax. Medical Superintendent.

*** We have often advocated the wider employment of male nurses.—ED. L.

CANINE HYSTERIA AND AGENISED FLOUR

SIR,—We have recently had the opportunity for the first time of being present when Sir Edward Mellanby exhibited his film *Canine Hysteria*. In view of the prominence which has been given in the medical press [1] to Sir Edward's reports on the rôle of agenised flour and wheat products in the causation of canine hysteria [2] and the widespread deductions, based on these reports, concerning the importance of agenised flours in the ætiology of canine hysteria, we feel that, as clinicians closely concerned with canine disorders in our professional duties, we should draw attention to certain matters relating to the diagnosis.

1. In several cases shown in the film the clinical signs were not typical of the condition which for many years we have recognised clinically as canine hysteria.

2. The disorder was not similar to the form of canine hysteria that we have observed in the London area and the provinces since the war years, when it has been much less common than formerly.

3. In particular, certain animals appeared to exhibit neurological signs, such as severe clonic choreic movements of the jaws and head, complete loss of vision, incoördination of gait, and hyperflexion of the hind limbs; these are strongly suggestive of localised nervous defects, which are more usually associated with an infective encephalomyelitis, and are certainly not seen in natural cases of uncomplicated canine hysteria. Furthermore, in the naturally occurring disease the severe epileptiform convulsion is not a common feature.

If the film is truly representative of the syndrome that Sir Edward observed—and we can only suppose that it is so—then there would appear to be grave doubts as to the precise nature of the disorder, and indeed whether it was in fact a single ætiological entity.

While this possibility does not detract from the interest in the action of the agene process on wheat proteins, we would suggest that the term "canine hysteria" should not be applied to this condition until the disorder has been investigated more fully. For the present, therefore, perhaps the term "agene intoxication" might be a more suitable diagnosis for the disorder produced by feeding agenised proteins to dogs.

M. HARVEY CLARK
S. F. J. HODGMAN
JOAN O. JOSHUA
HERBERT PARRY
OLGA UVAROV.

PLANTAR WARTS

SIR,—In his article of Jan. 31 Mr. McLaughlin calls for "rational" treatment of plantar warts. Whilst deploring, as must all, the bad results of ill-judged radiotherapy, I should like to make these comments:

1. Dosages of X rays in two units are quoted without any reference to the quality of the radiation. This is, to say the least, misleading.

2. Any radiotherapist of experience will know that doses of 800r, 900r, or 1200r given under the usual conditions, even if repeated, will not cure a plantar wart. It is this very technique of repeating doses of this order which produces the burns complained of.

3. Those who have studied and who know the biological effects of X rays and gamma rays on both normal and diseased tissue know full well that the destruction of hypertrophied normal tissues requires very large doses of irradiation. This, however, is not the aim in the treatment of plantar warts. If doses of this order are given to healthy skin a burn will certainly occur. This is particularly true of the sole of the foot, which with the palm of the hand is notoriously sensitive to radiation from such sources—a fact well known to radiotherapists.

4. The writer refers to "a general reluctance to face the stubborn fact that many plantar warts are insensitive to safe doses of X rays." We might ask, on whose part does this reluctance exist? All radiotherapists, and even dermatologists, should know that "all" plantar warts are insensitive to "any" doses of X rays.

5. The use of the word "irrational" as applied to radiotherapy is most strenuously refuted. Any method of treatment, unless carried out with due regard to basic underlying principles, is liable to failure. For this reason radiotherapeutic measures, unless employed with a full knowledge of the action of the radiation, are also likely to be without success. This, however, does not in the least imply that radiotherapy is an "irrational" procedure.

It may be of interest to know that very many cases referred for irradiation have already been previously subjected, without success, to diathermy coagulation, fulguration, carbon-dioxide snow, cauterisation, or scraping and excision.

London, W.1. F. M. ALLCHIN.

SIR,—I have been interested in the correspondence on this subject.

No-one has so far mentioned the very simple method of treatment of applying elastic adhesive bandage directly to the wart. The bandage should remain in place for a week or two at a time and be renewed as it loosens. The wart will be found to peel out with the bandage. No method could be more simple, cheap, or effective. Only in the presence of severe pain does surgery seem to be needed.

Cirencester. R. E. HOPE SIMPSON.

HEALTH CENTRES

SIR,—It is regrettable that it has become impossible to build immediately health centres, which would provide the general practitioner with (1) the means of having laboratory and other investigations carried out on the spot, (2) the advantage of sharing secretarial and nursing staff, and (3) closer and more friendly coöperation with his colleagues. Experimental centres, however, can be started where suitable premises are available for conversion and would provide a means of discovering the sort of permanent establishment best suited to the peculiar needs of each district. A preliminary approach would be to get together in a committee general practitioners, specialists, representatives from the local health authority and social services, and others whose work is concerned directly with the maintenance of physical and mental health. Such an attitude of coöperation would, to my mind, be much more in keeping with the dignity of the profession than the present rather hysterical defence of an obsolete system of medical service.

London, N.W.3. N. CHISHOLM.

CALF PLASMA FOR TRANSFUSION

SIR,—I read with much interest the article by Dr. Massons, of Barcelona, in THE LANCET of Sept. 7, 1946. I was asked by Prof. Ali Bey Hassan, dean of the faculty of medicine, to prepare calf plasma and test it on animals and patients.

I used practically the same technique as Dr. Massons. To the citrated bovine plasma, formol and, a few minutes later, ammonia are added. The plasma is then diluted with doubly distilled water so that the concentration of proteins becomes round about 4%. The plasma is heated to 100°C, cooled and filtered, put in glass ampoules, and tyndallised. Plasma treated in this way undergoes slight discoloration and becomes opalescent. The pH of different samples is between 7·2 and 7·5. The viscosity is increased by such treatment from about 1·4 to about 1·8. This treated plasma keeps well at ordinary temperatures, and it does not agglutinate or hæmolyse human red blood corpuscles. By this method the anaphylactogenic properties of calf plasma are destroyed.

Rabbits were injected subcutaneously with 1 ml. of untreated plasma on three consecutive days. After three weeks they were injected with 5 ml. intravenously. In a short time the animals died of severe dyspnœa; this is the sign of anaphylaxis in rabbits. Another batch of rabbits was injected by the same technique with treated plasma; no anaphylaxis took place and the rabbits were well and healthy 24 days after the last injection.

We used the treated calf plasma for patients in the faculty hospital with the following conditions: (1) burns; (2) shock from wounds or ileus—i.e., cases of surgical urgency; (3) hypoproteinæmia; and (4) dehydration in infants. The results were very satisfactory and encouraging, and not inferior to those obtained with human plasma. No reactions were observed beyond transient slight pain along the vein during the first part of the

1. *Brit. med. J.*, leading article, 1946, ii, 903; *Lancet*, leading article, Jan. 3, p. 27.
2. Mellanby, E. *Brit. med. J.* 1946, ii, 885; *Ibid*, 1947, ii, 288.

transfusion. There was no suspicion of urticaria, which is the most constant sign of serum sickness.

The advantages of calf plasma as compared with human plasma are the cheapness and simplicity of its preparation. The preparation of human plasma is so tedious and the price so high that it is beyond the reach of the poor. Moreover, it has not been easy to obtain in sufficient amounts during the epidemic of cholera in Egypt. Calf plasma can be stored without deterioration and there is no need for refrigeration or any other special conditioning. Anybody who can give an intravenous injection can administer it; its action approximates closely to that of human plasma, and its effect is not merely temporary like that of saline. Furthermore, it does not carry the danger of transmitting hepatitis as does human plasma.

I wish to thank Prof. Ali Bey Hassan, under whose supervision this work was done, for his kind aid and helpful criticism.

Farouk University, Alexandria. H. BARSOUM
Assistant professor of clinical pathology.

STREPTOMYCIN NEEDS

SIR,—I read your leading article of Feb. 21 with great interest. It is important that the present position regarding the use of the drug and its potentialities should become widely known, though whether, in the present state of our knowledge of the end-results, treatment should be given to all cases is open to doubt. In any case I cannot help feeling that you underestimate the number of beds that will have to be set aside for the treatment of cases of tuberculous meningitis.

In the first place, I think your suggestion that of the 2000 cases occurring annually only half are suitable for treatment is too low an estimate. Secondly, we do not yet know the length of time a patient will have to be kept under observation until the possibility of relapse can be safely disregarded. Of 12 children with tuberculous meningitis treated for more than eight months in the Royal Hospital for Sick Children, Glasgow, 3 relapsed seven or more months after treatment had commenced. Relapse in tuberculous meningitis is a new phenomenon, for until the introduction of streptomycin all cases died in the first attack. It is widely believed that the meninges become infected from a cerebral tuberculide which ruptures or ulcerates into the meningeal spaces. While streptomycin seems to be able to arrest the meningitis, it must be remembered that there remain numerous tuberculides scattered throughout the brain which have not been sterilised, and that any one of them may reinfect the meninges. We have to rely on the natural defences of the body for the healing of these lesions; all we can do is to encourage this by placing the patient in the best environment. The length of time required for healing is unknown and probably depends on many factors, but it would be safe to say that a year would not be excessive.

You base the bed requirements on an average stay of six months and suggest that, to treat all suitable cases of tuberculous meningitis, 300 beds will be necessary. If, as I suggest, treatment should continue for a year, double that number of beds will have to be provided. Moreover, if, as I think is likely, you have underestimated the number of cases requiring treatment, the bed accommodation will have to be augmented still further.

These observations are not made with the object of discouraging the wider use of streptomycin but to call attention to the administrative problem which will arise if the cure of tuberculous meningitis requires treatment comparable in duration to that of other forms of tuberculosis.

Glasgow. GEOFFREY B. FLEMING.

THE MAJORITIES

SIR,—Your leading article of Feb. 14 says: "A big responsibility . . . rests on the B.M.A. council when it meets next week to review the result of the plebiscite. Very possibly it may, like the Minister, have the support of the large majority for which it asked—a majority in each case composed largely of people who do not fully understand the issues."

Is it true to suggest that the size of the majority of doctors voting against the Act is due to their not understanding the issues? During the last twelve months doctors have had every opportunity of studying the Act, its benefits and its shortcomings. True, it is upon the latter that the B.M.A. has mostly concentrated, but the merits of the Act have been widely canvassed in the press, in the House by the Minister himself on various occasions, and in the country by other members of the Government. When the *British Medical Journal* published the Negotiating Committee's statement, in the same issue was the Minister's reply and also a paper entitled "General comments of the Minister, addressed to the individual doctor." These documents were posted to every member of the profession.

There is no evidence that all this information has been ignored by the doctors. At the time of the second plebiscite they had far greater knowledge than when the first was taken. It is important to note the effect of this greater knowledge. Combining the consultant-specialist group with the general practitioner group—as being those upon whom the principal onus of running the new service will fall—we find that 41% of those voting in 1947 were in favour of the Act and only 10% now. In other words, the more the profession understands the issues, the less it likes them.

By mentioning the two majorities in the same sentence there is carried an implication, unintended we are sure, that this is a party matter. Maybe there are some who feel that the situation could not have been worse handled than by the present Minister. Maybe there are those who think that the Labour Party are selling the public a Civil Service type of medicine for which they had no mandate at the election. To these extents politics may enter the field, but to say the whole dispute is a political issue is just another ministerial red herring. We do not believe that the mass of doctors is any more concerned with the fate of the political parties in this matter than those parties appear to be concerned with the fate of medicine in this country. We are quite certain that whatever party had perpetrated the present Act it would not have found favour with the medical profession.

R. HALE-WHITE
Chairman, St. Marylebone Division, B.M.A.
HORDER
Chairman, Consultants and Specialists Liaison Committee.

TREATMENT OF ARTHRITIS BY INTRA-ARTICULAR INJECTION

SIR,—We should like to answer some of Dr. Nicholson's interesting criticisms (Jan. 31) of our article published on Jan. 17.

Our statement that "while under injection treatment patients have received no other form of therapy" referred of course to the fact that during treatment no form of physiotherapy was used other than active exercises, which we regard as an integral part of the treatment.

Dr. Nicholson wished to know the comparative results of treatment on hips and knees. These are as follows:

	No. of cases	
	Knees	*Hips*
(1) No improvement	8	9
(2) Slight improvement (continuing injections) ..	4	4
(3) Slight improvement (ceased injections) ..	3	1
(4) Moderate improvement (continuing injections)	6	2
(5) Moderate improvement (ceased injections) ..	5	3
(6) Great improvement (continuing injections) ..	1	3
(7) Great improvement (ceased injections).. ..	7	7
Totals ..	34	29

It will be seen that in this little series the results of injection treatment were in fact comparable for the two types of joint.

We agree that the criteria offered as proof of hip-joint puncture are not absolute. We too have acquired a proper humility as a result of practice, not with the injection of an opaque dye but with injection of Bonney blue in the cadaver. We realise that the hip-joint is often extremely difficult to puncture. Where, however, we have considered it likely that the injected fluid has not entered the joint space, we have always made a note to that effect. Again and again after such an unsatisfactory injection the patient has complained, on his next attendance, that "things have not gone so well" or that pain and dysfunction have actually increased. Moreover, if the fluid fails to enter the joint cavity anæsthesia is not complete and this alone is a sign of failure.

Commonly entry into the hip-joint can be confirmed by withdrawal from it of some of the injected fluid; a mere 10 ml. disseminated through the periarticular tissues would surely not be recoverable. It is agreed that crepitus could possibly be caused by periarticular friction, but it is difficult to see the virtue in this hypothesis. Only in the grossest arthritis is knee crepitus not relieved by the injection of fluid into the joint, and in these cases presumably the grating surfaces are too rough for the sound to be silenced by the fluid. In this joint successful puncture is seldom in doubt. In the osteo-arthritic hip (where the X-ray film usually shows obvious roughening of the joint), Dr. Nicholson asks us to believe that the crepitus is due to an extraneous cause for which we have no radiological, clinical, or pathological evidence.

Since submitting our article, one of us (M. S. C.) has shown that during early treatment there is a quite definite and constant recurrence of pain about 14 days after injection. It is difficult to see how the effect of the procaine could last so long or how fluid injected, not into the joint but, as Dr. Nicholson suggests, around it could have such prolonged virtue or show such constancy in the duration of its effectiveness. Our theory that this surprisingly constant period represents the time that a degenerated joint takes to rid itself of fluid and return to its untreated dry state seems to us much more in keeping with the observed facts.

Lastly, we agree that the question of the relationship of joint pH to the disease process is fundamental; but we feel, as a result of our preliminary work, that its importance may have been overemphasised and that this relationship may in the end be found to be nebulous and quite unimportant, at least in the treatment of the established condition. One of us (M. S. C.) is, however, planning some work on this. We feel that investigation into the effect of local vascular changes, primarily upon the synovial drainage and secretion equilibrium, and secondarily upon the loss of fluid and drying of the joint, resulting possibly in denudation and erosion of the joint cartilage, may prove a more profitable line of research.

Dr. Fox (Feb. 14) compares our results with those of other treatments. He stated that we had 14 successes and 13 failures. In fact our figures were: 13 in which the treatment was unsuccessful and 41 in which definite improvement was noted, while in 14 of these the success was outstanding.

Northwood, Mddx. DUDLEY M. BAKER.
Southend-on-Sea. MARK S. CHAYEN.

Parliament

FROM THE PRESS GALLERY

Attempted Rape Bill

IN the House of Lords on Feb. 17 the Lord CHANCELLOR moved the second reading of this Bill.[1] During the debate Lord FARINGDON admitted a lack of enthusiasm for the Bill, which seemed to him to show no appreciation of modern views of crime and punishment. This particular crime was one for which he believed punishment could not be a deterrent. It was probably true that at least 90%, and possibly all, of these cases arose really from a psychological maladjustment. He could have wished that the Bill had shown the Government's awareness of the need for special treatment of offenders of this sort. To protect society—and that presumably was the aim of all punishment—it must be recognised that a criminal of this kind required treatment if he was ever to be released into society again. Without such treatment it was no better to confine a man for seven years than for two years. Lord Faringdon added he would prefer to see an offender of this sort confined indefinitely and subjected to treatment, until competent medical authorities were prepared to take responsibility for his release; otherwise he should remain secluded from society.

Scientific Books from Abroad

In the House of Lords, on Feb. 18, Lord BALFOUR OF INCHRYE called attention to the present restrictions on the import of books which were heavily handicapping the book trade and those responsible for the supply of scientific literature. University College, London, for instance, had had great difficulty in obtaining American scientific books. At the University of Durham lecturers had to write weekly sheets for distribution to their classes because of the difficulty of getting textbooks. The Biochemical Society said that this year's edition of *The Annual Review of Biochemistry* had been held up for many months owing to Customs difficulties. The Physiological Society also complained of their troubles. One and all, these learned bodies declared that they were hampered by the import restrictions themselves and by the administration of these restrictions.

There were sometimes delays of 4 or 5 months before import licences were obtained from the Board of Trade, and as the Customs only guaranteed to hold a consignment 28 days at the dockside there was a danger that books would never be delivered to the proper recipient. He suggested that there should be a maximum time laid down in which these licence applications should be dealt with. He also proposed that the quota of 100% of the 1938–39 trade should be increased to 200% to allow for the change in the value of money. Finally, he suggested that blanket licences up to a given amount should be granted to universities, libraries, and other approved scientific bodies.

Lord CHORLEY, replying for the Government, pointed out that in 1947 an open licence for serious books had been granted. The result was a tremendous increase in the supply. By the time the dollar crisis reached us in August we were spending about £1 million a year on these books, many of which were rubbish masquerading as biographies and so forth. In our difficult economic situation, it would have been unreasonable to leave these books untouched when the imports of food supplies were being cut. It had therefore been found necessary to return to the quota system, and the quota was fixed at 100% of the pre-war amounts allocated to different firms. As a result of discussions which were taking place between the Board of Trade and representatives of learned institutions it might well be that some increase would be made in the quota, but he could not hold out any hope that there would be an increase to 200%. He would consider the suggestion of blanket licences for universities and similar institutions, but if it were found that the general quota could be increased, it would be more effective, he thought, to increase the allocations to booksellers, as the universities were not constituted to embark on the business of importing books.

QUESTION TIME

Coöperation

Mr. D. L. LIPSON asked the Minister of Health if he would now invite representatives of the British Medical Association to meet him so that a further attempt might be made to ensure that the National Health Act would have the coöperation and good will of the doctors when it began to operate on July 5.—Mr. A. BEVAN replied: I remain ready to coöperate closely with any professional spokesmen who want, with me, to make the new service a success.—Mr. LIPSON: Can the Minister go a little further and invite representatives of the doctors to meet him, because, in the interests of the health service, all the country wants is a victory for common sense?—Mr. BEVAN: We all want a victory for common sense, but I should not be entitled to go behind the back of the House and suggest that Parliament can surrender any position it has taken up.

Sir H. MORRIS-JONES: Would the Minister care to make a start towards proper negotiations again by withdrawing a statement which he made about the "raucous voiced" leaders of the British Medical Association, who have now been shown clearly as only interpreting the wishes of their constituents?—Mr. BEVAN: It remains to be seen how long they will interpret the wishes of their constituents. As the debate last week showed, every concession has been made by the Government. It is now time that concessions were made on the other side.

Lieut.-Colonel M. LIPTON: Will the Minister see that the loyal and gallant minority of doctors who are willing to coöperate with the Government is protected against any possible form of intimidation and victimisation?—MR. BEVAN: Certainly.

Mr. LIPSON: Is the Minister aware that I am not asking him to go behind the back of Parliament, but to follow up some of the concessions which were suggested, or some of

1. See *Lancet*, Feb. 7, p. 232.

the doors he opened, in his speech in the House, to see if it is possible to resume the negotiations?—Mr. BEVAN: I am always ready to listen to any fresh representations that may be made to me. I have always been ready to meet the representatives of the medical profession, and am still ready if they have any fresh suggestions to make.

Papworth Colony

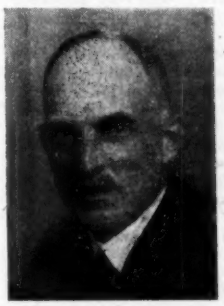
Mr. A. E. STUBBS asked the Minister what would be the position of Papworth Industries Limited after July 5.—Mr. BEVAN replied: The industries will continue under voluntary management, but the sanatorium will become part of the hospital service.—Mr. STUBBS: Is the Minister aware that the employees of Papworth Colony, most of whom are outpatients, are much alarmed at the rumour that the industries will not be taken over; and will he consult the management and the trade unions concerned before any change takes place?—Mr. BEVAN: As I have said, the Papworth Industries will not be taken over because they are not part of the health service.

Obituary

PHILIP EDWARD HOMER ADAMS

M.A., B.M. OXFD, F.R.C.S., D.O.

Mr. P. E. H. Adams, who died on Feb. 12 at the age of 68, had been connected for over fifty years with the Oxford Eye Hospital, which was founded by his uncle, Robert Doyne. The son of G. D'Arcy Adams, M.D., he was educated at Lancing College and Exeter College, Oxford. His association with ophthalmology began as an undergraduate, for his uncle encouraged him to accustom himself to the use of the ophthalmoscope at the eye hospital. He was also a keen member of the university fencing club—another of his uncle's creations.



[Elliott & Fry

In 1901 Adams took his B.A., and three years later he qualified from the London Hospital, taking the F.R.C.S. the following year; in 1910 he took his B.M. and the D.O. In 1904 he joined the staff of the Oxford Eye Hospital as a clinical assistant, becoming assistant to the honorary staff in the following year, and he was elected surgeon in 1910. In 1913 he was appointed Margaret Ogilvie reader in the university, a position he held till 1941, and from 1912 he was also consulting ophthalmic surgeon to the Radcliffe Infirmary.

Mr. Adams held office as president of the ophthalmological section of the Royal Society of Medicine, and as vice-president of the Ophthalmological Society of the United Kingdom. A founder member of the Oxford Ophthalmological Congress, he served as master from 1926 to 1928, and as deputy master from 1929 to 1942. "After the hospital," writes O. B. P., "the congress was Adams' chief professional interest. He raised it to the status of an international meeting, while retaining its friendly, almost domestic character. Another of his interests was the diploma of ophthalmology, in which he took pride in maintaining a high standard, both in the courses of instruction and in the examinations. He himself was a fine teacher and many ophthalmic surgeons owe much to his practical common sense. In his dealings with his patients, whether in hospital or in private practice, he never spared himself, and he would not rest content until he had thoroughly thrashed out all that could be known about a case and he felt that everything possible had been done."

"Adams was a much loved figure in Oxford," adds A. C. L. H., "and he will be remembered with affection by those who consulted him both at the hospital and in his private practice. Those who worked with him were always impressed by the care with which he examined his patients and the thoughtful consideration he gave to each."

Mr. Adams broke his long association with Oxford in 1946 when he retired from practice and went to live at Theberton in Suffolk. By his first wife, Marjorie Smith, who died in 1924, he had a son and two daughters, who survive him with his second wife, Helen Weller-Poley, whom he married in 1929.

WILLIAM HENRY DICKINSON

M.R.C.S.

Dr. W. H. Dickinson, who died on Jan. 31, was the son of Edward Dickinson, F.R.C.P. After leaving Cambridge University he qualified from St. George's Hospital in 1903. Possessing private means he spent most of his life at Hoylake in Cheshire, where golf became his main occupation and interest, interspersed with winter sports in Switzerland.

When war broke out in 1914, Dickinson joined a field ambulance as a driver, but before his division embarked for France in March, 1915, he had become a medical officer to his field ambulance. For four years he served in France and took part in all the battles undertaken by his division. He never sought distinction: the satisfaction of being "one of a crowd," especially one of a staunch crowd, was all he desired. Beloved by all who came into contact with him, he never made an enemy, for his unselfishness, good nature, and cheerfulness inspired affection and disarmed bitterness. F. C.

Brigadier H. B. F. Dixon, who served with Dickinson in France, writes: "Dickinson had given up medicine for some time before the war, and he felt he was not good enough to be a medical officer, so he joined up as an ambulance driver and was quite happy in the job. It was with the greatest difficulty we persuaded him to take his place professionally in the unit, where his charm of manner and cheerfulness made up for any academic knowledge he claimed to have forgotten. He was never happier than when he was in 'the line' either in a R.A.P. or with an advanced dressing-station, where his lovable character, good humour, and common sense made things run smoothly and kept morale high. Despite his pretended ignorance of higher medicine and surgery, his patients, sick and wounded, appreciated his care and attention."

Dr. ROLF CREASY, who died on Feb. 20, founded the Medical Golfing Society towards the end of the last century and was its secretary for fifty years. On his retirement from office last year the members marked the occasion with a presentation. Dr. Creasy, who was the last surviving son of Sir Edward Creasy, historian, qualified from Guy's Hospital in 1885.

Appointments

ANDERSON, THOMAS, M.B. Glasg., D.P.H.: asst. M.O.H., Ealing.
FANNING, JAMES, M.D. Lond., D.P.H.: deputy county M.O.H., Surrey.
FRANKLIN, J. A. C., M.B. Lond., D.P.H.: deputy county M.O.H., Gloucestershire.
JOHNSON, ETHEL, M.B. Durh.: registrar, radiotherapy department, Westminster Hospital.
LLOYD, J. T. A., M.B. Manc.: asst. pathologist, Park Hospital, Davyhulme, Manchester.
PARKER, W. S., M.B. Manc., D.P.H., D.I.H.: M.O.H., Cromer, North Walsham, Sheringham, and Erpingham, and M.O., E. Norfolk Joint Isolation Hospital.
ROGERS, K. B., M.D. Lond.: clinical pathologist, Children's Hospital, Birmingham.
STIDOLPH, N. E., D.M. Oxfd, F.R.C.S.: surgical registrar, Prince of Wales's General Hospital, London.

Middlesex County Council:
BONNIN, J. G., M.B. Melb., F.R.C.S., M.R.C.O.G.: surgeon, Central Middlesex County Hospital, Park Royal.
MULLARD, K. S., M.A., M.B. Camb., F.R.C.S.E.: thoracic surgeon, Hillingdon and Harefield County Hospitals.
PERKINS, A. C. T., M.C., M.D. Lond., D.P.H.: county M.O.H.
PHILLIPS, J. B., M.D. Lond., D.P.M.: chief physician, Springfield Mental Hospital.
ROYDS, J. E., M.B. St. And., M.R.C.P.: chief assistant in medicine, Ashford County Hospital.

Colonial Service:
BARWELL, A. H., M.R.C.S.: M.O., Kenya.
BATHFIELD, C. A., M.B.E., G.M., F.R.C.S.: orthopædic surgeon, Mauritius.
DORAN, T. A., M.D. St. And.: M.O., Fiji.
FRISCHMANN, PAUL, M.D. Cagliari: M.O., Nigeria.
HINGSTON, C. W. J., M.R.C.S.: M.O., Gold Coast.
MACBEAN, DOROTHEA, B.SC., M.B. Aberd.: M.O., Gold Coast.
SHAW, G. I., M.B. Glasg., D.T.M. & H., D.P.H.: senior health officer, Hong-Kong.
SHOUCAIR, E. S., M.B. Edin.: M.O., Jamaica.
SPICER, J. R. C., M.B. Lond., D.T.M. & H.: senior M.O., Tanganyika.
VICKERS, W. J., M.R.C.S., D.P.H., D.T.M. & H.: director of medical services, Singapore.

Notes and News

SUPPORT FOR HOSPITALS IN THE NATIONAL HEALTH SERVICE

A MEMORANDUM on personal support for hospitals in the National Health Service, issued by the British Hospitals Association, answers many questions in the minds of present hospital supporters and workers. It shows the very wide range of opportunity which will remain for helping in the work of hospitals after their ownership is transferred to the Crown, and it emphasises the need for continuance of personal interest in, and voluntary service for, the hospital patient. "There will still be need in the hospital service for local interest, local initiative and local support; and . . . those generous helpers who have in the past done so much to meet human needs, to foster interest and to stimulate progress in our hospitals will continue to find in them a field in which very valuable service can be rendered to the community."

After July 5 gifts can be made to any particular hospital and will be retained by that hospital for its own particular use. These gifts need not be earmarked for a special purpose and will in no circumstances be taken away from the hospital either for redistribution or for relieving the Treasury of meeting the full costs of the ordinary maintenance of the hospitals and their services. The memorandum gives many illustrations of the purposes for which gifts will be welcome, including medical research, amenities for the staff and patients, and supplementation of the resources of the hospitals to stimulate progress in medical treatment and in methods of hospital administration.

This useful and timely memorandum should correct many misapprehensions. Copies may be had, for 3*d*. post free, from the association at 52, Green Street, London, W.1.

REPRESENTATION OF HOSPITAL OFFICERS

THE proposal to launch a new National Federation of Hospital Officers is criticised in a letter we have received from representatives of ten trade unions and other organisations, including the National Association of Local Government Officers.

The signatories say that the majority of hospital officers are already attached to one or other of these ten bodies, "all of which in their appropriate spheres can adequately cater for their existing members in the new situation arising out of the Health Service Act, and for any staffs, and particularly those in voluntary hospitals, which have not hitherto been within the scope of collective bargaining." The move to set up a new organisation "is seriously prejudicial to the work already done, and the further effort yet to be made, in getting into running order the new bargaining machinery for the national service. Within the last month or two, the existing organisations, at the invitation of the Minister, have had a series of consultations on the new machinery to deal with pay and service conditions, and by a remarkable display of coöperation and good will have reached agreement with the Minister and among themselves on its main principles and have already in a number of cases agreed on their own representation on the staffs' side of the several functional councils of which it will be comprised. It has been reported to us that the promoters of the movement have put it out that the Minister considers that certain grades of the service should belong to a separate organisation. We have sought and received an assurance that this is not so. We have all long experience of the organisation of hospital staffs and we shall continue to consult each other with a view to effective action. We do not intend to see our existing work undone or our further work prejudiced. It is our policy to coöperate with the Minister and with each other in implementing the great legislative benefits of the Health Act to the best public advantage; and to secure all that is justly due to all officers and servants who will serve the public in this sphere."

MEDICAL CERTIFICATES FOR DIABETICS

THE Minister of Food has decided, on the advice of the Food Rationing (Special Diets) Advisory Committee of the Medical Research Council, that doctors may in future certify patients suffering from diabetes mellitus for extra allowances of food on form RG50 instead of the special form which requires a statement of the insulin dosage. A statement of insulin dosage need no longer be given; form RG50, stating that a patient is suffering from diabetes mellitus, will qualify the holder for extra allowances of meat, cheese, butter, and margarine until the end of the rationing year. These allowances can be renewed at the end of the rationing year without a further medical certificate. If the doctor wishes a diabetic patient to receive also a priority allowance of milk, he should state on the RG50 not only that the patient is suffering from diabetes mellitus but also the appropriate qualifications for milk as set out in MED.2. The milk allowance will be granted up to the end of the rationing year and will be renewed only against a further medical certificate.

ORTHOPTIC JOURNAL

THE *British Orthoptic Journal* has appeared again after an interval of three years. The new issue (no. 4) of this well-produced journal contains articles by 27 contributors. These cover a wide variety of subjects, including Service orthoptics, of which accounts are given by several of those who worked in this country and in the Middle East. Modern technique and choice of operation in squint surgery are both well described; and results of operation alone are compared with results where this has been combined with orthoptics. Among the contributors are several ophthalmic surgeons. Many interesting points in the progress made during the last five years in the training of squint patients may be gathered from these pages.

HISTORY OF PUBLIC MEDICAL SERVICES

Dr. René Sand, professor of social medicine in the University of Brussels, in his recent Chadwick lecture on How Medicine Became Social, said that in Greece the municipalities created a public medical service and the example was followed in Asia Minor and Sicily. The municipal physicians, appointed by a vote of the citizen's assembly, were well rewarded in money and honours. The city provided a large and well-lighted building with a waiting-room, consulting-room, operating-theatre, dispensary, and accommodation for outpatients as well as residence for the physician. A special tax was levied to maintain this public medical service. In course of time this movement extended throughout the Roman Empire, but as the Empire crumbled there followed a period of inactivity and there was not a revival until the 13th century when the municipalities appointed physicians, surgeons, oculists, lithotomists, and midwives. They were to be found established in France, Germany, the Netherlands, and in Switzerland, but the lecturer had been unable to find that the movement extended to England. In Italy, Sweden, and Norway at the present time one doctor in three is a municipal physician.

In Great Britain the prevailing characteristic has been the gratuitous service for the poor, of which the first example by an organised body was in the charter in 1599 of the Faculty of Physicians and Surgeons of Glasgow, which pledged them "to give counsell to puir disaisit folk gratis." The phrase social medicine was first used in France just one hundred years ago during the 1848 Revolution.

1797–1947

FEW firms can claim that their business has been handed down for 150 years in unbroken succession from father to son; and surely there is only one board whose nine members share a single great—or (in some cases) great-great—grandfather. Howards & Sons [1] look back in this intimate way to Luke Howard, their Quaker ancestor, born in 1772. At 15 Luke was apprenticed to a pharmaceutical chemist in Stockport, where he received salutary advice by letter from his father: ". . . dost thou rise at seven in the morning, dost thou bend thy mind attentively to business, dost thou cheerfully ask leave for every absence and give a faithful account of thy time." He bent his mind attentively, and founded the firm which his namesakes, in such profusion, still control. Howards' ether was famous nearly fifty years before ether was used as an anæsthetic, and Howards' aspirin is known to every admirer of Bateman. Cinchona studies were made by Joseph Jewell, partner of Luke, and by many members of the Howard family, especially by Luke's son, John Eliot Howard, who was one of the world's foremost quinologists, and a fellow of the Royal Society. Study of the cinchona alkaloids was carried on by David Howard, his nephew, founder and president of the Society of Chemical Industry and the Royal Institute of Chemistry. Of the nine present members of the board, seven bear the name of Howard, and two had Howards for their mothers. Seven of these directors

1. Howards 1797–1947. Published by Messrs. Howards, of Ilford at the 150th anniversary of the firm.

were at Marlborough and five served with the Artists Rifles in our century's wars. During the air-raids of 1940, bombs fell on the works, and James Howard, a distinguished chemist who was doing important work on quinine for the Government, was killed. Later the factory again suffered when a V1 fell on it in 1944. The remains of this projectile were converted into sulphate of iron tablets, which were later sent to the devastated countries—an example of Howards' capacity for making good.

FILM ON CURARE

A FILM has been made by the Wellcome Film Unit to demonstrate the pharmacology and clinical use of *d*-tubocurarine chloride in shock treatment and anæsthesia. Carefully devised and beautifully illustrated in colour, the production is a model of good technique in the field of instructional films; but since it sticks to essentials it offers little that is new to those at all familiar with the drug.

THE HOSPITALS YEARBOOK

THE 1947–48 edition of the *Hospitals Yearbook* contains familiar and valuable features in its summary of hospital finances and its directories of hospitals and associated organisations. To these is now added a directory of rehabilitation services setting out the resources in each hospital region. In an editorial review Mr. J. P. Wetenhall examines administration of the hospital service under the National Health Service Act. The yearbook is published by the British Hospitals Association, 52, Green Street, Park Lane, London, W.1.

MEDICAL FILMSTRIPS

THE Royal Society of Medicine and the Scientific Film Association met jointly on Feb. 12 for a discussion on "Making your own Medical Filmstrips." Mrs. Helen Coppen (Institute of Education) explained that the filmstrip is a collection of still pictures assembled in logical sequence on standard cinematograph film to provide illustrations to a theme. The pictures are projected on to the screen with a projector specially designed to accommodate the small image sizes, of which two are in common use: single-frame 18×24 mm., and double-frame 24×36 mm.; the latter is preferable for home-made strips. Describing how he makes filmstrips, Dr. R. N. Tattersall (Leeds) explained that the proposed subject is first considered by a group representing everybody who is likely to use the finished strip. Items to be demonstrated are then embodied in a careful script providing instructions to the photographer. Dr. Brian Stanford outlined some photographic aspects of production. The subjects may be X-ray photographs, line drawings, printed matter, or bromide prints, which have widely differing contrast ranges. To produce a clean strip, the entire tone range of the positive film should be filled; so it is best to take each subject on the film stock best suited to its tone range, and then to make the finished strip by copying the negatives with a Leica camera. Since, however, the most suitable conditions rarely prevail, the subject should be restricted to five basic tones—black, dark grey, mid grey, light grey, and white.

SHAKESPEARE'S SON-IN-LAW

IN *The Shakespeare Circle* [1] Dr. C. Martin Mitchell, of Stratford-on-Avon, has written a life of Dr. John Hall, Shakespeare's son-in-law, who lived in the town from about 1600 to 1635—that is, from the time he was 25 till his death. Unfortunately, facts are scanty: it is even uncertain whether Dr. Hall ever lived at "Hall's Croft," though Dr. Mitchell, confident in its fitness, publishes a photograph of this charming house as a frontispiece to his book. It is known, however, that Hall was educated at Cambridge, and spent some time in France, that he settled in Stratford, married Susanna, Shakespeare's wise and capable daughter, lived for 20 years at Shakespeare's "New Place," which Susanna inherited, collected many case-notes (now in the British Museum), some of which were later published as *Select Observations*, refused a knighthood, grew quarrelsome in his old age, and died, possibly of an infection current among his patients at the time. With such slender materials Dr. Mitchell does his best to present Dr. Hall in the round; and it is perhaps ungrateful to say the result owes more to speculation than the critical reader could wish. It seems that in therapeutics Hall was abreast—or even in advance—of current practice; and his particular success in treating scurvy Dr. Mitchell ascribes to his massive use of herbs. In this he may be right; but the only evidence he gives is the case of Mrs. Wagstaff, treated with a prescription of 17 unspecified herbs "beaten, boiled and strained." How much ascorbic acid survived this treatment it is not possible to guess. Other cases quoted from the *Observations* show the doctor to have been industrious, confident, and a scrupulous note-taker; and though the book has some tantalising omissions it is a lively account of Shakespeare's family and friends, presenting Stratford as a bustling place rather than a lifeless "still."

1. Birmingham: Cornish Brothers. Pp. 116. 12s. 6d.

University of Oxford

Dr. G. S. Dawes has been appointed director of the Nuffield Institute of Medical Research.

University of Cambridge

On Feb. 14 the following degrees were conferred by proxy:

M.D.—H. M. Woodman.
M.B., B.Chir.—M. G. H. Lewis, K. L. Williams, J. H. Angel, G. M. Woodwark, J. S. Jenkins, J. D. G. Turner.

University of Birmingham

Dr. J. R. Squire has been appointed Leith professor of experimental pathology and director of the department of pathology.

Dr. Squire, who is 32 years of age, was educated at Westminster School, Caius College, Cambridge, and University College Hospital. After taking his M.B. in 1939 he held house-appointments at U.C.H. In 1941 he took the M.R.C.P., and the following year he joined the R.A.M.C., serving for a time with no. 1 medical research section, Home Forces, till he was appointed to the staff of the scientific adviser to the Army Council. In 1943 he was posted to Burma as medical specialist to an operational research unit, and in 1944 he was put in charge of the biological research section of South East Asia command. After demobilisation in 1946 Dr. Squire became director of the Medical Research Council's industrial medicine research unit at the Birmingham Accident Hospital. He is also a member of the M.R.C. occupational medicine committee and of their toxicology committee. In 1940 he published a paper on blood quantity in skin, but his war-time research work has not yet been released by the Army Council.

Dr. J. W. Orr has been appointed to the second chair of pathology.

Dr. Orr, who is reader in experimental pathology and assistant director of cancer research in the Leeds School of Medicine, qualified in medicine at Queen's University, Belfast, in 1923, and the following year he took his B.Sc. with first-class honours in pathology. He was awarded the gold medal for his M.D. thesis in 1926. After holding the Musgrave studentship and Riddell demonstratorship in pathology at Belfast, he was appointed first assistant in the department of pathology at St. Mary's Hospital, London. His published work includes papers on multiple malignant neoplasms, changes in the spleen in experimental streptococcal infections, and changes in mouse skin induced with carcinogenic hydrocarbons.

Dr. J. R. Gibson has been appointed lecturer in social medicine, and Dr. J. M. Mynors assistant lecturer in anatomy.

University of Leeds

Dr. D. N. Ross has been appointed a research fellow in rheumatism, Dr. E. C. Allibone a clinical lecturer in pædiatrics, and Dr. W. Goldie lecturer in pathology.

University of Sheffield

Dr. C. E. Davies has been appointed research assistant in clinical medicine, Dr. T. Stapleton tutor in child health, and Dr. A. Jordan honorary lecturer in clinical biochemistry.

Southern Counties Medical Exhibition

This exhibition will be held at the Polygon Hotel, Southampton, on April 20, 21, and 22. A programme of medical films will be shown from 3 P.M. each day.

Society of Chemical Industry

The food group and microbiological panel of this society will hold a meeting at Burlington House, Piccadilly, London, W.1, on Wednesday, March 10, at 6.15 P.M., to discuss the Microbiological Control of Therapeutic Products.

C.M.F./M.E.F. Physicians

A reunion dinner will be held at the Apothecaries' Hall on Saturday, April 10. Anyone interested should write to Dr. A. Willcox, the hon. secretary, 66, Harley Street, London, W.1.

Harveian Society of London

On Wednesday, March 17, at 8.30 P.M., at 26, Portland Place, W.1, Dr. Th. Alajouanine, professor of neurology in the faculty of medicine in the University of Paris, will deliver the Harveian lecture, on Aphasia and Artistic Realisation.

Tudor Edwards Memorial Fund

This fund will be closed on March 31. Till then donations may be sent to the treasurer, Lord Courtauld-Thomson, at Brompton Hospital, London, S.W.3.

Poliomyelitis Conference

Official delegates from more than sixty nations, says B.U.P., have been invited to attend the first International Poliomyelitis Conference, to be held in New York from July 12 to 17. The conference is being organised by the National Foundation for Infantile Paralysis.

Royal Photographic Society of Great Britain

The medical group of this society will hold an exhibition of photography at 1, Wimpole Street, London, W.1, from May 24 to 29. The closing date for entries is April 24, and further particulars may be had from the hon. secretary of the group, 16, Princes Gate, S.W.7.

Marriage Guidance

The Home Secretary has appointed a departmental committee to consider on what lines marriage guidance as a form of social service can best be developed in England and Wales if assisted by Exchequer grants, and to advise on what basis Exchequer grants could properly be made to this service. The members of the committee are: Sir Sidney Harris (chairman), Mrs. E. G. M. Barlas, Mr. G. E. Haynes, Sir Edwin Herbert, Dr. Edward Larkin, and Miss W. M. Goode. Miss P. Boys-Smith, the secretary, may be addressed at the Home Office, Whitehall, S.W.1.

London Regional Tuberculosis Society

Representatives of the various tuberculosis societies in the North-west Metropolitan region have lately met with a view to forming a society to be known as the North-West Metropolitan Regional Tuberculosis Society. Membership will be open to practitioners engaged whole-time in the tuberculosis services in the region; and associate membership will be open to those working part-time. A meeting of those interested will be held at Kensington Town Hall, High Street, W.8, on Tuesday, March 16, at 7 P.M.; and further information is obtainable from Dr. C. P. Hay at the same address.

Births, Marriages, and Deaths

BIRTHS

BRAY.—On Feb. 19, the wife of Dr. John Bray—a daughter.
HARTLEY.—On Feb. 14, the wife of Dr. C. E. Hartley—a daughter.
HUDSON.—On Feb. 18, in London, the wife of Dr. J. R. Hudson—a daughter.
HYLTON.—On Feb. 19, at Clevedon, Somersetshire, to Dr. Lorna Hylton, wife of Dr. William Hylton—a daughter.
LUND.—On Feb. 9, at Johannesburg, to Elizabeth Lund, M.B., wife of Mr. Maxwell Lund, F.R.C.S.—a daughter.
MACDONALD.—On Feb. 14, at Coulsdon, the wife of Dr. I. D. MacDonald—a son.
RETTIE.—On Feb. 20, the wife of Dr. G. K. C. Rettie—a daughter.
WIRGMAN.—On Feb. 13, in London, the wife of Dr. R. E. Wirgman—a daughter.

MARRIAGES

COLLARD—ROBERTSON.—On Feb. 7, in London, Patrick J. Collard, M.B., to Jessie Robertson, B.M.
GILMORE—MUIR.—On Feb. 20, at South Woodford, Haldane Carson Gilmore, L.R.C.P.I., to Margaret MacIntosh Muir (née Archibald), M.B.
HEATHCOTE—CADMAN.—On Feb. 19, Reginald St. A. Heathcote, F.R.C.P., to Mrs. Amy Cadman (née Howson).
KRAFFT—JOHNSTON.—On Feb. 3, at Prittlewell, Essex, Dr. Gerard Krafft, to Dr. Catherine Vallance Johnston.
MILNE—RAWLINSON.—On Feb. 11, at Halifax, Robert Marshall Milne, M.B., to Elizabeth Margaret Rawlinson, S.R.N.
STEIN—RACHWALSKY.—On Feb. 22, in London, G. E. Stein, major, R.A.M.C., to Lora Rachwalsky, M.B.

DEATHS

CREASY.—On Feb. 20, in London, Rolf Creasy, M.R.C.S.
DALZIEL.—On Feb. 21, in London, John McEwen Dalziel, B.SC. M.D. Edin., D.T.M.
DROOP.—On Feb. 15, at Tilford, Surrey, Charles Edward Droop, M.A., M.B. Camb., aged 70.
FAIRLIE-CLARKE.—On Feb. 16, Allan Johnston Fairlie-Clarke, M.A., M.CHIR. Camb., F.R.C.S., aged 70.
HARRIS.—On Feb. 16, at Ramsgate, Robert James Harris, M.R.C.S.
HENERY.—On Feb. 16, in London, John Philip Edmund Henery, L.M.S.S.A.
SOLLY.—On Feb. 19, at Exeter, Reginald Vaughan Solly, M.D. Lond., M.R.C.P., F.R.C.S., aged 83.
WALES.—On Feb. 16, at Whalley, Herbert Wales, M.A., M.B. Camb., aged 70.
WALKER.—On Feb. 18, at Bradford-on-Avon, Henry Secker Walker, M.SC. Leeds, F.R.C.S., aged 84.
WINCKWORTH.—On Feb. 20, Wadham Bruce Winckworth, M.R.C.S., aged 79.

A Lecture at Harvard

Dr. W. N. Pickles, medical officer of health for Aysgarth, Yorkshire, will deliver the Cutter lecture on preventive medicine at Harvard University school of public health, Boston, Mass., on April 12. Dr. Pickles has chosen as his subject Epidemiology in Country Practice.

Society of Chiropodists

The annual convention of the society will take place on April 22, 23, and 24. Sir Alfred Webb-Johnson, F.R.C.S., will open the convention on Thursday, 22nd, at 2.30 P.M., and other speakers will include Mr. Norman Lake, Prof. F. Wood Jones, F.R.S., and Dr. Reginald Brain. All the meetings with the exception of Prof. Wood Jones's lecture, which will be given at the Royal College of Surgeons, will be held at Friends House, Euston Road, N.W.1.

Association of Sea and Air Port Health Authorities of the British Isles

The annual meeting of the association will be held at Swansea on May 12, 13, and 14. The speakers will include Dr. N. Gebbie (the Romance of the Port Health Service), Surgeon Captain H. M. Willoughby (Experiences of a Naval Hygiene Officer 1939–47), and Dr. R. Barrett (the Egyptian Cholera Outbreak, 1947). Further information may be had from Dr. H. C. Maurice Williams, Health Department, Civic Centre, Southampton.

Dr. Robert Platt, professor of medicine in the University of Manchester, is visiting Hungary, on behalf of the British Council, to lecture on kidney diseases and high blood-pressure.

Diary of the Week

FEB. 29 TO MARCH 6

Monday, 1st

ROYAL COLLEGE OF PHYSICIANS, Pall Mall East, S.W.1
5 P.M. Dr. P. M. F. Bishop: Hormones in Medical Practice. (First lecture.)
ROYAL COLLEGE OF SURGEONS, Lincoln's Inn Fields, W.C.2
5 P.M. Mr. R. J. McNeill Love: Biliary Apparatus. (Erasmus Wilson demonstration.)
MEDICAL SOCIETY OF LONDON, 11, Chandos Street, W.1
9 P.M. Dr. C. E. Dukes: Clinical Pathology in Relation to Medical Practice. (Third Lettsomian lecture.)

Tuesday, 2nd

ROYAL COLLEGE OF PHYSICIANS
5 P.M. Dr. W. Russell Brain: Treatment of Paraplegia.
INSTITUTE OF DERMATOLOGY, 5, Lisle Street, W.C.2
5 P.M. Dr. I. Muende: Pathological demonstrations.
UNIVERSITY COLLEGE, Gower Street, W.C.1
5 P.M. Mr. L. E. Bayliss, PH.D.: Some Aspects of General Physiology. (First of four lectures.)

Wednesday, 3rd

ROYAL COLLEGE OF SURGEONS
5 P.M. Mr. P. H. Mitchiner: Enlargement of the Testis and Epididymis. (Erasmus Wilson demonstration.)
ROYAL INSTITUTE OF PUBLIC HEALTH & HYGIENE, 28, Portland Place, W.1
3.30 P.M. Mr. S. E. T. Cusdin, A.R.I.B.A.: Planning of a Modern Hospital in Relation to the Public Health.
MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH
8.30 P.M. (7, Drumsheugh Gardens.) Sir David Henderson, Mr. G. L. Alexander: Physical Methods of Treatment in Psychiatry with Special Reference to Leucotomy.

Thursday, 4th

ROYAL COLLEGE OF PHYSICIANS
5 P.M. Dr. T. C. Hunt: Diseases of the Colon with Special Reference to Ulcerative Colitis.
ROYAL COLLEGE OF SURGEONS
3.45 P.M. Prof. M. Greenwood, F.R.S.: Simple Statistics of Cancer. (Imperial Cancer Research Fund lecture.)
ROYAL PHOTOGRAPHIC SOCIETY, 16, Prince's Gate, S.W.7
7 P.M. *Medical Group.* Dr. C. Hamilton Wilkie: Application of Medical Photography to Venereal Disease.
MEDICAL SOCIETY OF THE L.C.C. SERVICE, County Hall, S.E.1
4.15 P.M. Dr. E. N. Allott, Dr. C. A. Holman, Dr. A. G. Signy: Recent Developments in Connexion with Blood-transfusion.
INSTITUTE OF DERMATOLOGY
5 P.M. Dr. B. Russell: Diseases Affecting the Lips and Mucous Membranes.
INSTITUTE OF LARYNGOLOGY & OTOLOGY, 330, Gray's Inn Road, W.C.1
5.30 P.M. Mr. G. Ewart Martin: Acute Otitis Media.

Friday, 5th

ROYAL COLLEGE OF PHYSICIANS
5 P.M. Dr. J. Forest Smith: End-results of Upper Respiratory Infection in Children.
ROYAL COLLEGE OF SURGEONS
5 P.M. Dr. L. W. Proger: Giant Cells. (First of two Erasmus Wilson demonstrations.)
LONDON CHEST HOSPITAL, Victoria Park, E.2
5 P.M. Mr. J. W. S. Lindahl: Sinus Infection in Chest Diseases.

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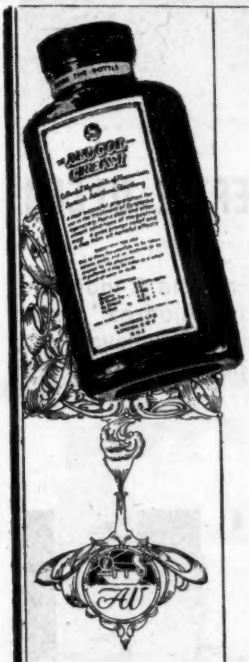

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Fig. 1

Fig. 2

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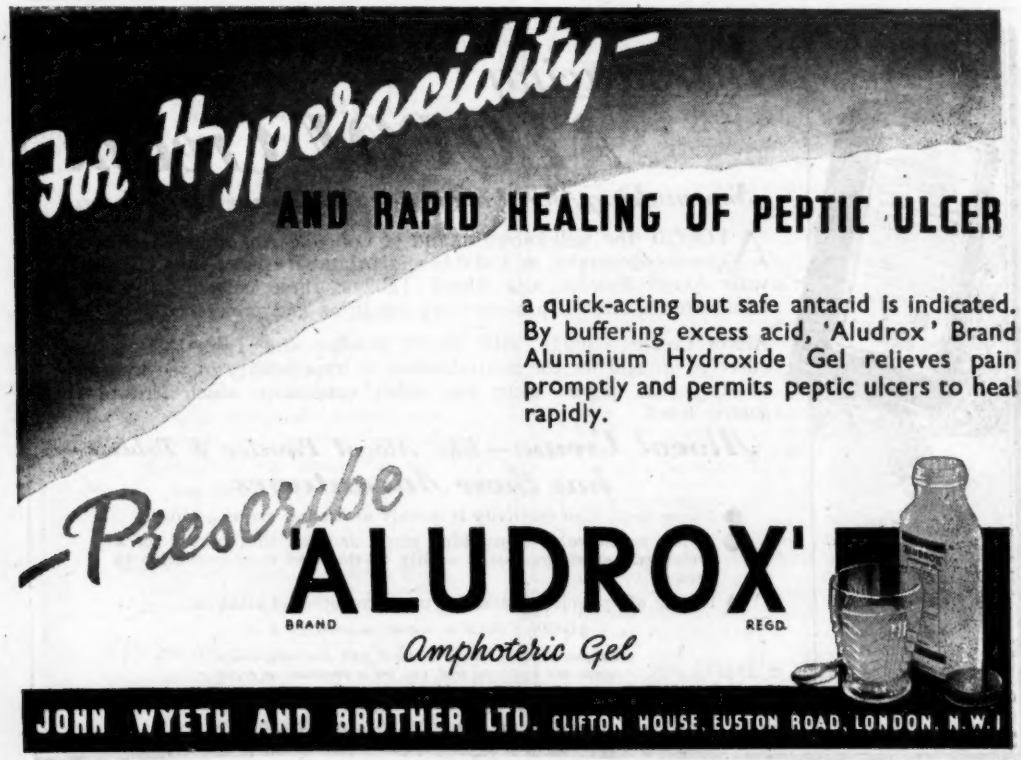
Fig. 3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Wed., 3rd, 5 P.M. — Mr. P. H. MITCHINER — Enlargement of the Testis and Epididymis

IMPERIAL CANCER RESEARCH FUND LECTURE

Thurs., 4th, 3.45 P.M. — Prof. M. GREENWOOD — Simple Statistics of Cancer

ERASMUS WILSON DEMONSTRATIONS

Fri., 5th, 5 P.M. — Dr. L. W. PROGER — Giant Cells

Mon., 8th, 5 P.M. — Dr. L. W. PROGER — Giant Cells

Wed., 10th, 5 P.M. — Mr. R. W. RAVEN — The Surgical Manifestations of Boeck's Sarcoid

Thurs., 11th, 5 P.M. — Mr. V. ZACHARY COPE — Varieties of Intestinal Obstruction

ARRIS AND GALE LECTURES

Fri., 12th, 5 P.M. — Mr. LEON GILLIS — Recent Advances in the Treatment of Arm Amputations, Cineplastic Surgery, and Arm Prostheses

Mon., 15th, 5 P.M. — Dr. E. M. DARMADY — Acute Uræmia: Its Ætiology and Basis for Treatment

ARNOTT DEMONSTRATIONS

Tues., 23rd, 3.45 P.M. — Mr. R. J. LAST — The Kidneys

Wed., 24th, 3.45 P.M. — Mr. R. J. LAST — The Pectoral Girdle

Thurs., 25th, 3.45 P.M. — Mr. R. J. LAST — The Knee-joint

The Lectures are open to those attending courses in the College and also to all other medical practitioners, dental surgeons, and advanced students.

W. F. DAVIS, Secretary, Postgraduate Education Committee.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

LECTURES IN SURGERY—MARCH–APRIL, 1948

The following Lectures in Surgery will be delivered at the College in Lincoln's Inn-fields, London, W.C.2, at 5 P.M. on each day :—

Tues.,	16th	Mr. A. J. GARDHAM	Surgery of Malignant Disease of the Pharynx
Wed.,	17th	Prof. LAMBERT ROGERS	Surgery of the Spinal Cord
Thurs.,	18th	Mr. RODNEY MAINGOT	Surgery of Peptic Ulcer
Fri.,	19th	Mr. A. DICKSON WRIGHT	Varicose Veins and Ulcers
Mon.,	22nd	Sir REGINALD WATSON-JONES	Fractures of the Spine
Tues.,	23rd	Mr. M. F. NICHOLLS	Surgery of the Urethra and Bladder
Wed.,	24th	Mr. A. HEDLEY WHYTE	Surgery of the Rectum
Thurs.,	25th	Mr. T. TWISTINGTON HIGGINS	Urinary Obstruction in Childhood
Tues.,	30th	Mr. R. M. HANDFIELD-JONES	Some Less Usual Examples of Acute Intestinal Obstruction
Wed.,	31st	Prof. G. GREY TURNER	Surgery of the Spleen
Thurs.,	1st	Sir HENEAGE OGILVIE	Scrotal Swellings
Fri.,	2nd	Mr. R. SCOTT MASON	Surgery of the Duodenum

The fee for the whole course is £5 5s. or 10s. for 1 lecture.

Fellows and Members, and Fellows and Licentiates in Dental Surgery, of the College will be admitted to the whole course on payment of a fee of £3 3s., or to 1 lecture on the payment of 7s. 6d.

Applications, accompanied by a cheque of £5 5s. or £3 3s., should be sent to the Secretary, Postgraduate Education Committee, Royal College of Surgeons of England, Lincoln's Inn-fields, London, W.C.2, not later than Friday, 12th March, 1948.

W. F. DAVIS, Secretary,
Postgraduate Education Committee.

ROYAL COLLEGE OF PHYSICIANS OF LONDON

J. F. WILKINSON, Esq., M.D., F.R.C.P., will deliver the OLIVER-SHARPEY LECTURES ON TUESDAY, 9TH MARCH, 1948, and THURSDAY, 11TH MARCH, 1948, at 5 P.M. at the College, Pall Mall East, S.W.1.

Subject : "Concerning Megalocytic Anæmias."

Any member of the Medical Profession admitted on presentation of card.

By Order of the President,
H. E. A. BOLDERO, Registrar.

UNIVERSITY OF LONDON

ACADEMIC DIPLOMA IN MEDICAL RADIOLOGY

The next course for the D.M.R. (London) will commence in OCTOBER, 1948. The course is suitable for candidates for the D.M.R.D. or the D.M.R.T. of the Conjoint Board.

The fee will be 75 guineas for the D.M.R. course and 60 guineas for the D.M.R.D. or D.M.R.T. course.

The number of vacancies is limited, and early application is advised. The closing date for applications from candidates who are not members of a Medical School of London University is 1st May, 1948. Prospective candidates are informed that the regulations for the D.M.R. are now being revised and new regulations may come into force in October, 1948.

Further information and application forms may be obtained from the British Postgraduate Medical Federation, Central Office, 2, Gordon-square, London, W.C.1, to whom should be sent all communications about this course.

UNIVERSITY OF LONDON

BRITISH POSTGRADUATE MEDICAL FEDERATION

REFRESHER COURSES FOR GENERAL PRACTITIONERS
JANUARY–JUNE, 1948

Date	*No. of weeks*	*Subject*	*Hospital*
1st April–18th June	Extended 12 afternoons	General	Hampstead General Hospital, Haverstock-hill, N.W.3
19th-24th April	1	General	Royal Sussex County Hospital, Brighton
26th-30th April	1	Medicine	Metropolitan Hospital, Kingsland-road, E.8
3rd-7th May	1	Obstetrics and Gynæcology	Paddington L.C.C. Hospital
7th-11th June	1	Obstetrics and Gynæcology	North Middlesex County Hospital, Silver-street, Edmonton, N.
14th-18th June	1	Medicine	West Middlesex County Hospital, Isleworth

Fees : 5 guineas for 1 week and extended courses. Schemes of financial assistance are available, subject to certain conditions, for (*a*) demobilised general practitioners, (*b*) N.H.I. practitioners.

Applications for places, and further particulars, should be made to the Secretary, British Postgraduate Medical Federation, 2, Gordon-square, W.C.1. They should state if the practitioner is applying under (*a*) or (*b*) above, or not.

UNIVERSITY OF LONDON

A course of 2 lectures on "THE SURGERY OF LARGE ARTERIES" will be given by Professor J. R. LEARMONTH, C.B.E. (Edinburgh University), at 5.30 P.M. on 3RD and 4TH MARCH, at Westminster Hospital Medical School (Meyerstein Lecture Theatre), Horseferry-road, S.W.1.

At the first lecture the Chair will be taken by Sir Ernest Rock Carling.

Admission free, without ticket.

JAMES HENDERSON, Academic Registrar.

THE UNIVERSITY OF MANCHESTER

DIPLOMA IN BACTERIOLOGY

The course for the Diploma in Bacteriology will commence in OCTOBER, 1948. This is a full-time postgraduate course extending over one academic session and is intended for those who desire training for bacteriological work in connexion with medicine or other branches of science.

Inquiries should be addressed to : Prof. H. B. MAITLAND, Department of Bacteriology, York-place, Manchester, 13.

UNIVERSITY OF BRISTOL

A course for Part I of the University DIPLOMA IN PSYCHOLOGICAL MEDICINE (D.P.M.), provided sufficient applications are received, will commence in SEPTEMBER, 1948, and will cover a period of 10 weeks. It will embody lectures and demonstrations in special anatomy and physiology, electro-encephalography, and psychology.

The fee for the course will be 15 guineas.

Further details can be obtained from, and applications should be sent to, the Director of Medical Postgraduate Studies, University of Bristol.

UNIVERSITY OF BRISTOL

A course for the DIPLOMA IN PHYSICAL MEDICINE, PART I, of the R.C.P.&S. Eng. will commence in SEPTEMBER, 1948, at Bristol University.

The course will extend over a period of 5 months. It will consist of set lectures and practical work in physics, arranged to comply with requirements for the diploma, and also a short course of revisionary lectures in anatomy and physiology, together with advice on literature to be read. Access to the dissecting-rooms and laboratories will be provided.

In addition, arrangements are being made for attendance at clinics and in the wards and Physiotherapy Depts. of Hospitals both at Bath and Bristol for those wishing at the same time to study for Part II of the diploma.

The fee for the course will be £25.

Applications should be made to, and further details obtained from, the Director of Medical Postgraduate Studies, University of Bristol.

UNIVERSITY OF BRISTOL

Courses of instruction for the DIPLOMAS IN MEDICAL DIAGNOSTIC RADIOLOGY (D.M.R.D.) and THERAPEUTIC RADIOLOGY (D.M.R.T.) of the University will commence in OCTOBER, 1948.

The Diagnostic Course will cover a period of 18 months and the Therapeutic Course a period of 2 years of whole-time study.

The fee for either course is 50 guineas and the diploma examination fee is 10 guineas.

Copies of the diploma regulations and further details may be obtained from, and applications should be sent to, the Director of Medical Postgraduate Studies, University of Bristol.

UNIVERSITY OF BRISTOL

POSTGRADUATE COURSE IN CHILD HEALTH

The University has under consideration the organisation of a whole-time Course in Child Health covering a period of 3 months and commencing in OCTOBER, 1948.

The course would be under the direction of Professor Neale of the Dept. of Child Health in coöperation with the Depts. of Preventive Medicine, Medicine, Surgery, Pathology, &c. It would include lectures, demonstrations, ward rounds, and visits to clinics and ancillary institutions.

The course would be limited to a maximum of 12 students. The fee for the course would be 20 guineas.

Applications should be made to, and further details may be obtained from, the Director of Medical Postgraduate Studies, University of Bristol.

UNIVERSITY OF BRISTOL

A course for the DIPLOMA IN PUBLIC HEALTH of the University will commence in OCTOBER, 1948. The course is divided into 2 parts. The Preliminary Course for the Certificate (C.P.H.) occupies the first term of 10 weeks, the Final Course for the Diploma (D.P.H.) occupies the spring and summer terms. The syllabus complies with the rules of the General Medical Council. The course includes lectures, tutorial classes, laboratory demonstrations, and practical classes. Special visits to representative institutions and factories are arranged as part of the course. Instruction is under the direction of a M.O.H. and attendance in the practice of a hospital for infectious diseases can be arranged.

The following members of the University staff take part in the instruction : Dr. K. E. Cooper in bacteriology, Prof. J. E. Harris in zoology, medical entomology, and parasitology, Dr. W. Hobson in preventive medicine, Prof. R. H. Parry, M.O.H. for Bristol, in public health administration and law, and Prof. W. Hamilton Whyte in social economics and statistics.

The fee for the course is : Part I (C.P.H.), £21; Part II (D.P.H.), £31 10s.

Further details may be obtained from, and applications should be sent to, the Director of Medical Postgraduate Studies, University of Bristol.

NORTH LONDON POSTGRADUATE MEDICAL INSTITUTE

Bearsted Memorial Hospital, N.16 ; Chase Farm Hospital, Enfield ; North Eastern Hospital, Tottenham, N.15 ; North Middlesex County Hospital, Edmonton, N.18 ; The Prince of Wales's General Hospital, Tottenham, N.15.

A COURSE IN ADVANCED MEDICINE will be held from 26TH APRIL, 1948, to 18TH JUNE, 1948, including lectures, clinical and pathological demonstrations, and tutorials. Fee 25 guineas.

Kindly send applications and details of qualifications and experience to the Dean, The Prince of Wales's General Hospital, N.15.

UNIVERSITY OF GLASGOW
POST-GRADUATE MEDICAL EDUCATION COMMITTEE

REFRESHER COURSES FOR GENERAL PRACTITIONERS

The 10th Course for General Practitioners will be held from 17TH MAY to 29TH MAY, 1948. The course will comprise 10 lectures and approximately 60 hours devoted to clinical demonstrations and ward visits.

The fee for the course will be 10 guineas. Schemes for financial assistance are available under which the cost of both the fee and of travelling and subsistence allowances will, subject to certain conditions, be repaid to :—

(*a*) demobilised general practitioners within 1 year of release from the Forces; and

(*b*) doctors engaged in practice under the National Health Insurance Acts.

Since the numbers will be restricted, both Service and civilian practitioners wishing to attend should make early application to the Director of Post-Graduate Medical Education, The University, Glasgow, W.2, from whom further information may be obtained.

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE

DEPARTMENT OF MEDICAL STATISTICS

A short course in MEDICAL STATISTICS AND STATISTICAL METHODS, comprising lectures, demonstrations, and practical work from 10 A.M. to 4 P.M. on 2 days a week (Mondays and Thursdays) will be given from 12TH APRIL to 8TH JULY inclusive. Fee 12 guineas.

Forms of application for admission to the course can be obtained from the Registration Office, and should be submitted not later than Monday, 22nd March. Persons without a medical qualification can be accepted but in all only a limited number of students can be accommodated.

Further particulars of the course can be supplied on request by the Assistant Dean, London School of Hygiene and Tropical Medicine, Keppel-street, W.C.1.

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE

POSTGRADUATE ACADEMIC DIPLOMA IN BACTERIOLOGY

The course for the Postgraduate Diploma in Bacteriology for the session 1948–49 will commence in OCTOBER, 1948. This is a full-time day course extending over 1 academic year.

The course may be taken by :

(*a*) Graduates in medicine or veterinary science desiring to study bacteriology as applied to medicine and hygiene,

(*b*) Graduates in science with a first or second class honours degree in chemistry, or its equivalent. For such students the course covers the fields of general bacteriology, chemical microbiology, and industrial microbiology.

Applications for admission to the Diploma course must be received by end of March. Further information and application forms can be obtained from the Registrar, London School of Hygiene and Tropical Medicine, Keppel-street, W.C.1.

THE ROYAL INSTITUTE OF PUBLIC HEALTH AND HYGIENE

THE CERTIFICATE AND THE DIPLOMA IN PUBLIC HEALTH AND THE DIPLOMA IN INDUSTRIAL HEALTH

The next COURSE OF INSTRUCTION for the Certificate in Public Health (C.P.H.) will commence on TUESDAY, 23RD MARCH, 1948, for the Preliminary Examination of the Conjoint Board of the Royal Colleges of Physicians and Surgeons. The Courses, both for the Certificate and for the Diploma in Public Health, can be taken either whole or part time.

A Course of Instruction, part time or whole time, is also provided for the Diploma in Industrial Health. Part I is the same as and commences concurrently with the C.P.H. Course. Those already holding a Certificate in Public Health are exempt from that part. A Course for Part II (D.I.H.) commences in JULY, 1948.

Prospectuses, enrolment forms, and full details of both may be obtained from the Secretary, 28, Portland-place, W.1 (Telephone : LANgham 2731–2).

EMPIRE RHEUMATISM COUNCIL

The Spring week-end course will be held at The Apothecaries' Hall, Black Friars-lane, Queen Victoria-street, E.C.4 (Blackfriars Tube Station), on Friday, Saturday, and Sunday, 12th, 13th, and 14th March, 1948.

LECTURES

FRIDAY, 12TH MARCH

4.30–5.30 P.M.	Introductory Lecture	Prof. L. S. P. Davidson, F.R.C.P., F.R.S.E.
5.30–6.30 P.M.	Gout	G. D. Kersley, Esq., F.R.C.P.

SATURDAY, 13TH MARCH

10–11 A.M.	Osteoarthritis	Ernest Fletcher, Esq., M.R.C.P.
11.15 A.M.–12.15 P.M.	Spondylitis	W. S. Tegner, Esq., M.R.C.P.
2–3 P.M.	Juvenile Rheumatism and Still's Disease	R. E. Bonham-Carter, Esq., M.R.C.P.
3–4 P.M.	Non-Articular Rheumatism and Sciatica	W. S. C. Copeman, Esq., O.B.E., F.R.C.P.
4 P.M.	Tea	
4.30–5.30 P.M.	Rheumatoid Arthritis	Oswald Savage, Esq., O.B.E., M.R.C.P.

SUNDAY, 14TH MARCH

10–11 A.M.	Physical Treatment in the Rheumatic Diseases	H. A. Burt, Esq., M.R.C.P.
11.15 A.M.–12.15 P.M.	Orthopædic Aspects of the Rheumatic Diseases	W. D. Coltart, Esq., F.R.C.S.

The fee for the course will be 1 guinea, limited to 100 entries to be received with remittance, at least 1 week before, by the General Secretary, Empire Rheumatism Council, Tavistock House (N), Tavistock-square, W.C.1.

BRITISH POSTGRADUATE MEDICAL FEDERATION
(UNIVERSITY OF LONDON)

INSTITUTE OF ORTHOPÆDICS
ROYAL NATIONAL ORTHOPÆDIC HOSPITAL
234, Great Portland-street, London, W.1

Course in ADVANCED CLINICAL ORTHOPÆDICS to be held from 5TH–10TH APRIL, and repeated 19TH–24TH APRIL, 1948.

Monday (Great Portland-street)		
10.00	Club-foot	Mr. A. ROCYN JONES
11.15	Volkmann's Contracture and Torticollis	Mr. R. C. BAIRD
12.30	Lunch	
1.30	Ward Cases	Mr. R. C. BAIRD
4.15	Tea	
4.30	Shoulder and Brachial Plexus	Mr. P. H. NEWMAN
Tuesday (Great Portland-street)		
10.00	Orthopædic Principles in Arthritis	Mr. D. TREVOR
11.15	Scoliosis	Mr. A. T. FRIPP
12.30	Lunch	
1.30	Ward Cases	Mr. P. H. NEWMAN
4.15	Tea	
4.30	Some Bone Dystrophies	Mr. H. J. BURROWS
Wednesday (Country Branch, Stanmore)		
10.00	Clinical Demonstration	Mr. K. I. NISSEN
12.00	Surgery of Infantile Paralysis	Mr. K. I. NISSEN
1.00	Lunch	
2.30	Clinical Demonstration	Mr. V. H. ELLIS
4.15	Tea	
4.50	Bone Tumours	Mr. V. H. ELLIS
Thursday (Great Portland-street)		
10.00	Congenital Dislocation of the Hip	Mr. A. ROCYN JONES
11.15	Tendons	Mr. R. C. BAIRD
12.30	Lunch	
1.30	Ward Cases	Mr. A. T. FRIPP
4.15	Tea	
4.30	The Foot (not Club-foot)	Mr. R. Y. PATON
Friday (Country Branch, Stanmore)		
10.00	Clinical Demonstration	Mr. E. P. BROCKMAN
11.15	Kyphosis	Mr. E. P. BROCKMAN
12.30	Lunch	
1.30	Clinical Demonstration	Mr. J. A. CHOLMELEY
4.15	Tea	
4.30	Principles in Treatment of Tuberculosis	Mr. J. A. CHOLMELEY
Saturday (Great Portland-street)		
10.00	Coxa Vara and Coxa Plana	Mr. D. TREVOR
11.00	Intervertebral Disks	Mr. H. J. BURROWS
12.00	General Discussion	Class and Staff

The fee for the course is 6 guineas.

Early application, stating the date preferred, should be made to the Dean at the above address.

OXFORD POSTGRADUATE CENTRE

A 2-weeks' REFRESHER COURSE for General Practitioners and ex-Service Medical Officers (Class II) will be held at the following Hospitals :—

Royal Buckinghamshire Hospital, Aylesbury : 10th–22nd May, 1948, inclusive.

Royal Hampshire County Hospital, Winchester : 7th–19th June, 1948, inclusive.

The fee for the course will be 10 guineas. Schemes for financial assistance are available under which the cost of both the fee and travelling and subsistence allowances will, subject to certain conditions, be repaid to :—

(*a*) demobilised general practitioners within 1 year of release from the Forces; and

(*b*) doctors engaged in practice under the National Health Insurance Acts.

Applications for places in the course and for particulars of the financial assistance available should be made to the Chairman, University of Oxford, Postgraduate Medical Education Committee, 91, Banbury-road, Oxford, and *not* to the Hospital.

SOCIETY OF APOTHECARIES OF LONDON

DIPLOMA IN INDUSTRIAL HEALTH

The next Examination will begin on MONDAY, 5TH JULY, 1948. The following Examination will be held in December, 1948. For Regulations apply Registrar, Apothecaries' Hall, Black Friars-lane, London, E.C.4.

UNIVERSITY OF LONDON. Applications invited for a Research FELLOWSHIP founded by Turner & Newall Limited, tenable in the University and normally of the value of £600 p.a. The Fellowship will be awarded for scientific research in engineering, inorganic chemistry, or physics, or in any allied science. A Fellow will be required to take a limited part in the teaching in the department in which he works. The Fellowship will be tenable from October, 1948.

Detailed regulations and application forms can be obtained from the Academic Registrar, University of London, at the Senate House, London, W.C.1, and applications must be received at that address not later than 30th April, 1948.

UNIVERSITY OF LONDON. Applications invited for Research FELLOWSHIPS founded by Imperial Chemical Industries Ltd. and tenable in the University of London and normally of the value of £600 p.a. The Fellowships will be awarded for original research in biochemistry, chemistry, chemotherapy, engineering, metallurgy, pharmacology, physics, and allied subjects. A Fellow will be required to take a limited part in the teaching in the department in which he works. Fellowships will be tenable from October, 1948.

Detailed regulations and application forms can be obtained from the Academic Registrar, University of London, at the Senate House, London, W.C.1, and applications must be received at that address not later than 30th April, 1948.

THE ROYAL SOCIETY

GOVERNMENT GRANT FOR SCIENTIFIC INVESTIGATIONS

Applications for grants from the first allotment of the Government Grant for Scientific Investigations for the year 1948 should be made as soon as possible on forms of application to be obtained from the Assistant Secretary of the Royal Society, Burlington House, London, W.1.

No application can be considered which is received later than 31st March, 1948.

Applicants must be of British nationality, resident in Great Britain or Northern Ireland. Grants may be made for purposes in connexion with the promotion and support of research in pure science other than the payment of stipends; for the assistance of scientific expeditions and collections; but not in aid of scientific publications.

EDINBURGH POST-GRADUATE BOARD FOR MEDICINE

OBSTETRICS AND GYNÆCOLOGY

A 4 weeks' course in Obstetrics and Gynæcology has been arranged for 19TH JULY to 13TH AUGUST, 1948. It will be conducted in the Edinburgh Royal Infirmary and the Simpson Memorial Maternity Pavilion by the Senior Staff and the clinical teaching Staff, and will consist of approximately 80 hours' lectures, operating sessions, clinical work, and pathological demonstrations. The class will be limited to a minimum of 12 and a maximum of 20. Only those with considerable post-graduate experience in obstetrics and gynæcology should apply, as the course is intended for those wishing to specialise and is not a general refresher course. Fee 20 guineas.

INTERNAL MEDICINE

The course lasting 12 weeks, suitable for graduates wishing a refresher course, or to specialise in medicine, which begins on Monday, 12th April, 1948, is full. A similar class commences on 4TH OCTOBER, 1948. These courses consist of 300 hours' instruction, comprising lectures, clinical demonstrations, and ward visits. Fee 30 guineas.

GENERAL SURGERY

The 5 months' course of Postgraduate Surgery arranged to start on Monday, 29th March, 1948, is full. A similar course will begin on MONDAY, 18TH OCTOBER, 1948, and is suitable for surgeons requiring a refresher course in the current outlook on general surgery or for graduates preparing to specialise in surgery; approximately 280 hours of instruction are provided. Fee 35 guineas.

REFRESHER COURSE FOR GENERAL PRACTITIONERS

The 12th general fortnight refresher course, primarily for demobilised Medical Officers (Class II) and for Insurance Practitioners, will commence at 9 A.M. on MONDAY, 3RD MAY, 1948. 20 hours are devoted to lectures covering a wide range of subjects, with emphasis on recent advances in treatment. 50 hours are allotted to clinical demonstrations and ward visits. (A similar course may be held in September, 1948.) Fee for graduates not claiming expenses from Government sources, 10 guineas.

PÆDIATRICS AND OPHTHALMOLOGY

Short courses of instruction in Pædiatrics and Ophthalmology are run in conjunction with the courses in Medicine and Surgery. They are primarily intended for those who wish additional experience in these subjects. A small fee is charged and the numbers are limited.

Applications for enrolment to Director of Post-Graduate Studies, University New Buildings, Edinburgh, 8. Applicants for courses in Obstetrics and Gynæcology, Internal Medicine and Surgery, should supply particulars of qualifications and postgraduate experience.

EXAMINING SURGEONS: Factories Act, 1937. The following appointment as Examining Surgeon under the Factories Act, 1937, is vacant. Applications should be sent to the Chief Inspector of Factories, 8, St. James's-square, London, S.W.1.

District	*County*	*Latest date for receipt of application*
WALTHAMSTOW ..	ESSEX ..	13TH MARCH, 1948

ST. PETER'S HOSPITAL FOR STONE, Henrietta-street, Covent Garden, W.C.2. The office of HOUSE SURGEON will fall vacant 1st April, 1948, and applications are invited from Male candidates on the British Register with previous experience in a similar office at a general hospital. Salary £150 p.a., board, lodging, and laundry. At the expiration of 6 months' term of office, and subject to the recommendation of the Medical Committee, the House Surgeon may be appointed Resident Surgical Officer for a further similar period. Candidates should therefore be prepared, if successful, to remain at the Hospital for 12 months in all.

Applications (12 copies), accompanied by copies of 3 testimonials, should be forwarded to reach the Hospital Secretary by first post, 15th March, 1948.

THE ROYAL CANCER HOSPITAL (FREE) (Incorporated under Royal Charter), Fulham-road, London, S.W.3. Applications invited for post of Part-time SURGICAL REGISTRAR. Candidates must be duly qualified and registered under the Medical Act and engaged in consulting practice only. Preference given to those holding the diploma F.R.C.S. (Eng.). Appointment for 1 year, subject to re-election for a maximum of 3 years. Remuneration £500 p.a., and successful candidate required to attend a minimum of 5 half-days per week. A copy of the rules and further information may be obtained from the Secretary.

Applications, to be made on a form which will be supplied by the Secretary, with copies of 1–3 recent testimonials, to be sent by first post, 10th March, 1948, to—

VICTOR H. PINKHAM, Secretary.

THE ROYAL CANCER HOSPITAL (FREE) (Incorporated under Royal Charter), Fulham-road, London, S.W.3. JUNIOR ASSISTANT RADIOTHERAPIST. Salary £700 p.a. Appointment for 12 months. Applicants must be registered medical practitioners who hold a D.M.R.

Applications, on a form supplied by the Secretary, with copies of 3 recent testimonials, should reach undersigned by first post, 11th March, 1948. VICTOR H. PINKHAM, Secretary.

UNIVERSITY OF LONDON. The Senate invite applications for the READERSHIP IN ENTOMOLOGY tenable at the London School of Hygiene and Tropical Medicine. Salary £800–£1200, according to experience and qualifications.

Applications must be received not later than 3rd May, 1948, by the Academic Registrar, University of London, Senate House, W.C.1, from whom further particulars should be obtained.

UNIVERSITY OF LONDON. The Senate invite applications for the READERSHIP IN CLINICAL PATHOLOGY tenable at Guy's Hospital Medical School. Salary not less than £900. Applicants must have a special interest in clinical chemistry.

Applications must be received not later than 1st April, 1948, by the Academic Registrar, University of London, Senate House, W.C.1, from whom further particulars should be obtained.

UNIVERSITY OF LONDON. The Senate invite applications for the CHAIR OF PHYSIOLOGY tenable at London Hospital Medical College. Salary not less than £1500.

Applications must be received not later than 21st April, 1948, by the Academic Registrar, University of London, Senate House, W.C.1, from whom further particulars should be obtained.

LONDON COUNTY COUNCIL. Medical practitioner required for the whole-time position of SENIOR PHYSICIAN at Fulham Hospital, St. Dunstan's-road, Hammersmith, W.6. Salary £1500 a year, by annual increments of £100 to £1800. No emoluments are payable. The officer selected for appointment will be subject to the administrative direction and control of the Medical Superintendent, but will have full clinical responsibility for the work of his department at the hospital.

Applications should be made on the prescribed form obtainable on written application from the M.O.H. (S.D.2), The County Hall, Westminster Bridge, S.E.1. (Stamped foolscap envelope necessary.) The completed form should be returned by 8th March, 1948. Canvassing disqualifies. (405a)

CITY OF LONDON MATERNITY HOSPITAL, 102, City-road, E.C.11 Applications invited for post of RESIDENT MEDICAL OFFICER (B1), including R practitioners holding B2 appointments at the London Unit of the above Hospital. Salary £200 p.a., board, residence, &c. Appointment for 6 months, commencing 1st April, 1948.

Applications to be sent by 5th March to—

G. G. PANTER, Secretary.

CITY OF LONDON MATERNITY HOSPITAL, 102, City-road, E.C.1. Vacancies occur at the above hospital for 2 ASSISTANT OBSTETRIC SURGEONS. Candidates must be members of the Royal College of Obstetricians and Gynæcologists.

Applications, with copies of 3 testimonials, to be sent by 5th March to: GILBERT G. PANTER, Secretary.

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE, Keppel-street (Gower-street), London, W.C.1. Applications invited for post of LECTURER IN CLINICAL TROPICAL MEDICINE at the London School of Hygiene and Tropical Medicine. Duties will include participation in teaching and in research on tropical diseases. Applicants should hold a higher qualification in medicine and should have special experience in the diagnosis, treatment, and investigation of tropical diseases. Salary £1000 p.a. There is an additional grant of £250 p.a. from a research fund.

Applications, together with 3 copies of recent testimonials, should be sent by 30th April, 1948, to the Assistant Dean.

SOUTH LONDON HOSPITAL FOR WOMEN, Clapham Common, S.W.4. Applications invited from medical Women for appointment as Part-time MEDICAL REGISTRAR to the Outpatient Dept. Salary according to experience and time available but not less than £300 p.a. for 3½ days per week.

Applications, stating age, experience, and accompanied by testimonials, should be sent to the Secretary by 6th March.

SOUTH LONDON HOSPITAL FOR WOMEN, Clapham Common, S.W.4. Applications invited from registered Women medical practitioners for appointment of HOUSE SURGEON (A), now vacant. Appointment for 6 months. Salary £150 p.a., full residential emoluments.

Applications, stating age, nationality, and qualifications with dates, and accompanied by copies of 3 recent testimonials, should reach the Secretary at the Hospital as soon as possible.

WEST LONDON HOSPITAL, Hammersmith, W.6. (240 Beds.) RESIDENT ANÆSTHETIST (B2), Male or Female, vacant 14th April. Appointment for 6 months and may be terminated by 1 month's notice on either side. Salary £150 p.a., usual residential emoluments.

Applications, with particulars of age, nationality, medical school, qualifications with dates, experience, and accompanied by copies of 3 testimonials, must reach undersigned by first post, 9th March. Please state telephone number (if any).

C. R. LOCKHART, Secretary.

QUEEN MARY'S HOSPITAL FOR THE EAST END, Stratford, E.15. HOUSE SURGEON (A). Salary £200 p.a., with residential emoluments, lodging being provided temporarily out3ide the Hospital pending the extension of residential accommodation. Appointment 6 months.

Applications, with copies of recent testimonials, should be sent as soon as possible to—

M. J. HUNTLEY, House Governor and Secretary.

QUEEN MARY'S HOSPITAL FOR THE EAST END, Stratford, E.15. HOUSE PHYSICIAN (B2), Male or Female. Appointment 6 months. Salary £200 p.a., full residential emoluments.

Applications, with copies of recent testimonials, should be sent by 10th March, 1948, to—

M. J. HUNTLEY, House Governor and Secretary.

THE QUEEN ELIZABETH HOSPITAL FOR CHILDREN, Hackney-road, E.2. Applications invited for appointment as Part-time PSYCHOTHERAPIST in the Psychiatric Dept. Applicants must have experience in child psychiatry. Remuneration £2 12s. 6d. per session. More than one appointment will be made.

Applications, giving 2 references, should be submitted by 13th March, 1948, to: CHARLES H. BESSELL, General Secretary.

HIS MAJESTY'S COLONIAL SERVICE

COLONIAL MEDICAL SERVICE

The Colonial Medical Service offers an interesting career and provides unique opportunities for applying medical science in territories which are undergoing rapid development. There are immediate openings in many parts of the Colonial Empire and applications are invited from both men and women doctors who are British subjects and possess qualifications registrable in the United Kingdom.

Medical Officers are usually appointed in the first instance for general duties. This implies all-round ability with a balanced outlook upon both preventive and curative medicine. Officers are also required for public health duties, in which case the D.P.H. or some experience of health work is necessary. Ample opportunities exist for field investigation, while officers with special aptitude are encouraged to obtain such higher qualifications as will enhance their value to the Service. Officers are from time to time seconded or appointed to medical laboratories in the larger territories.

In the West African territories improved salary scales and conditions of service have recently been introduced. In most of the other territories the terms of service are being actively reviewed, and meanwhile temporary cost-of-living allowances are being paid over and above the existing salaries. At present initial *basic* salaries, i.e. irrespective of any cost-of-living allowance and of any credit that may be allowable for war service or professional experience, vary between £600 and £800 according to locality. There are, in addition, numbers of super-scale posts in the administrative and specialist grades which are normally filled by promotion within the Service.

Free passages for an officer and wife are generally provided both on first appointment and when travelling on leave of absence. Where Government quarters are provided a small rent is usually payable. Good leave conditions and an adequate pension scheme are in force. The Colonial Medical Service is a unified service and members are eligible for transfer from one territory to another, either with or without promotion.

Selected candidates may be required to take a course in tropical medicine either before proceeding overseas (in which case they would receive an allowance) or on first leave. Candidates for permanent service must have been born on or after the 1st January, 1908. Contract appointments are also available in certain territories for doctors born before this date.

Further particulars may be obtained from, and applications should be addressed to, the Director of Recruitment (Colonial Service), Colonial Office, 15, Victoria Street, London, S.W.1.

ST. MARY'S HOSPITAL, London, W.2. Assistant Orthopædic SURGEON. Candidates must be Fellows of the Royal College of Surgeons of England. Appointment for 5 years, at the expiration of which time the holder will be eligible for re-election.

Applications (4 copies), stating the names of 3 referees, should reach undersigned by 20th March, 1948.

W. PARKES, House Governor.

ST. MARY'S HOSPITAL, London, W.2. Applications invited for appointment of a PATHOLOGIST (whole time) to St. Mary's Hospital and Paddington Green Children's Hospital. Salary £1000 p.a. Appointment for 12 months.

Applications, stating nationality, age, qualifications, and experience, with names of 3 referees, should reach undersigned by 3rd March, 1948. W. PARKES, House Governor.

HOSPITAL OF ST. JOHN AND ST. ELIZABETH, 60, Grove End-road, N.W.8. Applications invited for post of SURGEON-IN-CHARGE of the Dept. for Diseases of the Ear, Nose, and Throat. Candidates must be Fellows of one of the Royal Colleges of Surgeons.

Applications (25 copies) should be sent to undersigned by 23rd March, 1948. Testimonials are not required but the names of 3 persons willing to act as referees should be furnished.

F. DUDLEY HOBBS, M.A., Secretary.

GUY'S HOSPITAL DENTAL SCHOOL. (London University.) DENTAL RESEARCH FELLOW. Appointment for 3 years in the first instance. Salary not less than £750 p.a., plus superannuation and family allowance.

Candidates, who should have experience of research in biochemistry, bacteriology, or a relevant branch of science, should apply to the Dean, Medical School, Guy's Hospital, London, S.E.1, before 31st May, 1948, and give the names of 2 referees.

ELIZABETH GARRETT ANDERSON HOSPITAL, Euston-road, N.W.1. Applications invited from registered medical Women for post of ASSISTANT ANÆSTHETIST, duties to commence mid-April. Remuneration 2½–4 guineas per session. Applicants must hold D.A.

Applications, with copies of 3 recent testimonials, should be sent to the Secretary by 16th March.

ST. GEORGE'S HOSPITAL, S.W.1. Applications invited for post of FIRST ASSISTANT, Anæsthetic Dept. Appointment for 1 year in the first instance from about 1st April, 1948. Applicants should possess the D.A. Salary £550 p.a., by annual increments of £50 to £650 p.a. Family allowance paid at the rate of £50 p.a. for each child.

Applications, with the names of 2 referees, should be sent by 6th March, 1948, to: P. H. CONSTABLE, House Governor.

BELGRAVE HOSPITAL FOR CHILDREN, 1, Clapham-road, S.W.9. HOUSE SURGEON (B2), Male or Female. Appointment for 6 months, commencing 24th March, 1948. Salary £150 p.a., full residential emoluments. Demobilised Medical Officers may apply for the higher rate of salary under the Government Scheme for Postgraduate Education.

Applications, stating age, with copies of 3 testimonials, should reach undersigned by 8th March, 1948.

A. L. FELL, Secretary.

POPLAR HOSPITAL, E.14. Applications invited from registered medical practitioners for appointments of HOUSE PHYSICIAN (B2) and HOUSE SURGEON AND CASUALTY OFFICER (A) for 6 months at a salary of £200 and £150 p.a. respectively, full residential emoluments.

Applications, stating age, nationality, qualifications with dates, and details of previous appointments, if any, with copies of 3 testimonials, should be sent as soon as possible to—

D. H. LINDSAY, House Governor and Secretary.

CHARING CROSS HOSPITAL MEDICAL SCHOOL, 42, Chandos-place, London, W.C.2. Applications invited immediately for post of LECTURER IN ORGANIC CHEMISTRY. Scale of salary £550–£850 p.a.

Further details and forms of application may be obtained from the Secretary.

DREADNOUGHT SEAMEN'S HOSPITAL, Greenwich, S.E.10. Applications invited for appointment of ANÆSTHETIST, now vacant, for attendance on Monday afternoons and not less than 1 additional attendance each week. Honorarium based on £250 p.a. for 1 attendance weekly.

Applications, supported by the names of 3 referees, to be sent by 13th March, 1948, to—

F. A. LYON, Administrator and Secretary.

THE ROYAL NATIONAL THROAT, NOSE, AND EAR HOS-PITAL, Gray's Inn-road, W.C.1, and Golden-square, W.1. ASSISTANTS in the Outpatient Dept. There are vacancies for attendance at both Gray's Inn-road and Golden-square Hospitals on several morning and afternoon clinics. The appointments afford good opportunities for acquiring clinical experience in the specialty, as the duties consist of seeing the old patients under the supervision of the Surgeons. An honorarium of £2 2s. per session is paid.

Applications, which may be for periods of 6 or 12 months and for one or more sessions weekly, should be sent to undersigned without delay, stating for which clinic application is made. JOHN H. YOUNG, House Governor.

THE ROYAL NATIONAL THROAT, NOSE, AND EAR HOS-PITAL, Gray's Inn-road, W.C.1, and Golden-square, W.1. Applications invited for the newly created post of NEURO-SURGEON to the Honorary Visiting Staff of the Hospital. Attendances arranged as the necessity arises. It is a rule that all members of the Surgical Staff must be Fellows of the Royal College of Surgeons of England.

Further information regarding the post may be obtained from undersigned, to whom applications should be sent by 5th March, 1948. JOHN H. YOUNG, House Governor.

THE ROYAL NATIONAL THROAT, NOSE, AND EAR HOS-PITAL, Gray's Inn-road, W.C.1, and Golden-square, W.1. Applications invited for the newly created post of PLASTIC SURGEON to the Honorary Visiting Staff of the Hospital. Attendances arranged as the necessity arises. It is a rule that all members of the Surgical Staff must be Fellows of the Royal College of Surgeons of England.

Further information regarding the post may be obtained from undersigned, to whom applications should be sent by 5th March, 1948. JOHN H. YOUNG, House Governor.

NATIONAL TEMPERANCE HOSPITAL, Hampstead-road, N.W.1. RESIDENT MEDICAL OFFICER (B1). Salary £350 p.a., with board, residence, &c. Some previous residential experience essential. Appointment for 6 months, dating as from 1st April, 1948.

Applications must reach Secretary and House Governor by 3rd March, 1948.

NATIONAL TEMPERANCE HOSPITAL, Hampstead-road, N.W.1. The Board of Management invite applications for post of MEDICAL REGISTRAR, at a salary of £300 p.a.

Applications, giving details of previous experience, and accompanied by 3 testimonials, should be submitted to the Secretary and House Governor by 3rd March, 1948.

NATIONAL TEMPERANCE HOSPITAL, Hampstead-road, London, N.W.1. The Board of Management invite applications for office of HONORARY ASSISTANT DIAGNOSTIC RADIO-LOGIST. Candidates are required to be medical practitioners engaged solely in consulting practice, and to possess a higher Diploma in Medical Radiology. Candidates will be expected to do 2 or 3 attendances weekly.

Applications, giving full details, with names of 3 referees, must reach the Secretary and House Governor by first post, 8th March, 1948.

ST. THOMAS'S HOSPITAL, S.E.1. Applications invited for post of TEMPORARY ASSISTANT MEDICAL OFFICER in the Venereal Diseases Dept., for 1 year. Salary £500–£650 p.a., according to experience, for a 25-hour week.

Applications, stating age, qualifications with dates, details of experience, and names and addresses of 3 referees, should be sent by 4th March to the Clerk of the Governors.

ROYAL FREE HOSPITAL AND ROYAL FREE HOSPITAL SCHOOL OF MEDICINE, Gray's Inn-road, W.C.1. JUNIOR LECTURER in the Dept. of Pathology, now vacant. Experience in bacteriology essential. Salary £500–£25–£700, with superannuation.

Applications (7 copies), stating qualifications, age, and experience, with 7 copies of 3 recent testimonials, should be sent to House Governor by 15th March, 1948.

ROYAL FREE HOSPITAL AND ROYAL FREE HOSPITAL SCHOOL OF MEDICINE, Gray's Inn-road, W.C.1. JUNIOR LECTURER in the Dept. of Pathology, now vacant. Experience in chemical pathology essential. Salary £500–£25–£700, with superannuation.

Applications (7 copies), stating qualifications, age, and experience, with 7 copies of 3 recent testimonials, should be sent to House Governor by 15th March, 1948.

POSTGRADUATE MEDICAL SCHOOL OF LONDON. (UNIVERSITY OF LONDON.) DEPARTMENT OF MEDICINE—TUBERCULOSIS SECTION. There is a vacancy for a CHEST PHYSICIAN to take charge of the Tuberculosis Dispensary. Appointee will be responsible for the tuberculosis services in the Borough of Hammersmith (population approximately 120,000). Appointment carries with it the status of Lecturer or Assistant Lecturer in Tuberculosis in the Dept. of Medicine in the Postgraduate School. Salary range from £1200–£1500 p.a.

Applications, with the names of 3 referees, to be sent to the Dean, Postgraduate Medical School of London, Ducane-road, W.12, before 13th March, 1948.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.3. Applications invited from registered medical practitioners (Male and Female), including suitably qualified R practitioners holding B2 posts, for appointment of RESIDENT SURGICAL OFFICER (B1). Applicants must have held a resident hospital appointment, and R practitioners holding B1 posts cannot be considered unless they have been rejected by the R.A.M.C. Appointment for 6 months, commencing 1st April, 1948. Salary at rate of £300 p.a., board and residence, and an additional £50 p.a. for services in connexion with paying patients.

Applications, stating age, qualifications with dates, nationality, and present post, and accompanied by copies of 1 or more recent testimonials, should reach undersigned by Saturday, 13th March, 1948. F. G. ROUVRAY, House Governor.

LONDON CHEST HOSPITAL, E.2. The Board of Management invite applications for post of ASSISTANT CARDIOLOGIST. Candidates must be members of the Royal College of Physicians of England.

Applications, with copies of testimonials, should be sent to undersigned (from whom further particulars may be obtained) to arrive by 20th March. THOMAS BROWN, Secretary.

CONNAUGHT HOSPITAL, Walthamstow, E.17. Clinical ASSISTANT, E.N.T. Dept., to attend 1 outpatient session per week (Thursday 2 P.M.). Sessional fee of £2 12s. 6d. Preference given to candidates holding the Fellowship of one of the Royal Colleges of Surgeons or the D.L.O.

Applications, with names and addresses of 2 referees, to be sent by 5th March, 1948, to: R. HALTON HARRISON, General Secretary.

CONNAUGHT HOSPITAL, Walthamstow, E.17. Applications invited from registered medical practitioners, Male, for following 2 positions each tenable for 6 months from 15th March, 1948:—

CASUALTY OFFICER (B2).

RESIDENT ANÆSTHETIST (B2). The Hospital is recognised by the Royal College of Surgeons for the D.A.

Salary in each case £200 p.a.

Applications should be sent to—

R. HALTON HARRISON, General Secretary.

COUNTY BOROUGH OF WEST HAM. Applications invited from registered medical practitioners (Male or Female) for post of ASSISTANT MEDICAL OFFICER (B1), at Whipps Cross Hospital, Leytonstone, E.11 (1200 Beds). Salary £455 p.a., by annual increments of £25 to a maximum of £555 p.a., plus a temporary cost-of-living bonus, with full emoluments. Duties mainly in medical wards.

Further particulars and forms of application from M.O.H., 225, Romford-road, West Ham, London, E.7, to be returned to him by 10th March, 1948. E. E. KING, Town Clerk.

West Ham Town Hall, Stratford, London, E.15,
9th February, 1948.

COUNTY BOROUGH OF WEST HAM. Applications invited for appointment as RESIDENT ASSISTANT MEDICAL OFFICER (B1) at the Council's Forest Gate Hospital. Duties principally in connexion with maternity unit and Council's antenatal and postnatal clinics. Previous experience of midwifery essential. Preference given to candidates who have held resident hospital appointment, and experience in administration of anæsthetics an advantage. Appointment for 1 year in first instance but may be extended. Salary scale £455–£555 p.a., and emoluments, plus temporary cost-of-living bonus.

Further particulars and application forms from M.O.H., 225, Romford-road, West Ham, E.7, to be returned to him by 10th March, 1948. E. E. KING, Town Clerk.

West Ham Town Hall, Stratford, E.15, 9th February, 1948.

ESSEX COUNTY COUNCIL HOSPITAL, Wanstead, London, E.11. Applications invited for temporary post of OBSTETRICIAN AND GYNÆCOLOGIST, limited to approximately 6 months. Applicants should have higher qualifications in obstetrics and should in addition have wide experience in both obstetrics and gynæcology, including operating. Salary £17 17s. per week, subject to deductions for residential emoluments.

Applications, stating age, qualifications, and position in regard to National Service, together with copies of 3 recent testimonials, should be forwarded to the Medical Superintendent as soon as possible.

MIDDLESEX COUNTY COUNCIL. Assistant Medical Officer required in Yiewsley and West Drayton. Whole-time appointment for maternity and child welfare and school health work, and such other duties as Council may require. Established, pensionable, subject to medical examination. Salary scale £780, rising after 2 years, by £30 p.a. to £930 p.a., plus any temporary bonus (now £60 p.a.).

Applications (no forms), with copies of 3 recent testimonials, to undersigned by 18th March (quoting D.683. L.).

C. W. RADCLIFFE, Clerk of the County Council.

Middlesex Guildhall, S.W.1.

MIDDLESEX COUNTY COUNCIL. Part-time Psychiatrist required 4 sessions a week for Edmonton Borough. Registered medical practitioners of consultant status with special experience in child psychiatry. £4 4s. per session, plus mileage allowance.

Applications (no forms), stating age, qualifications, experience, with copies of 3 recent testimonials, to M.O.H., Town Hall, Edmonton, N.9, by 15th March (quoting D.663.L.).

C. W. RADCLIFFE, Clerk of the County Council.

Middlesex Guildhall, S.W.1.

MIDDLESEX COUNTY COUNCIL. Casualty Officer (B1) required at North Middlesex County Hospital, Edmonton, N.18, for casualties and hospital admissions, &c. Good all-round experience. R practitioners holding B2 posts eligible; those holding B1 posts ineligible unless rejected for H.M. Forces. Salary £350 p.a., plus any temporary bonus (now £30 p.a., cash). Board, lodging, and laundry. 6 months' appointment. Vacant 1st April. Duty hours 10 A.M. to 6 P.M., daily, Saturday afternoon and Sunday free.

Applications to Medical Director of Hospital by 10th March (quoting D.688.L.).

C. W. RADCLIFFE, Clerk of the County Council.

Middlesex Guildhall, S.W.1.

MIDDLESEX COUNTY COUNCIL. Casualty Officer (B1) required at West Middlesex County Hospital, Isleworth, for admissions in Casualty Dept. Must have held medical and surgical house posts. R practitioners holding B2 posts may apply; those holding B1 posts ineligible unless rejected for H.M. Forces. Salary £350 p.a., plus £100 p.a. non-resident allowance and any temporary bonus (now £30 p.a., cash). Whole-time 6/12 months' appointment. Vacant now. Medical examination.

Applications, stating age, qualifications, experience, with copies of up to 3 recent testimonials, to Medical Director of Hospital by 6th March (quoting D.689.L.).

C. W. RADCLIFFE, Clerk of the County Council.

Middlesex Guildhall, S.W.1.

MIDDLESEX COUNTY COUNCIL. Surgeon for Orthopædic and Traumatic Unit, West M'ddlesex County Hospital, Isleworth. Higher surgical qualification. General scope of duties, arranged by Medical Director, may include teaching. Inclusive salary £1200 (plus any temporary bonus, now £60 p.a.) by £100 to £1800 p.a.; on proof of outstanding achievement increments of £50 up to £2200 may be granted. Any fees received to be paid to County Council. Whole time, non-resident, established, pensionable, subject to medical examination. Required to live near Hospital and undertake to act as Deputy Medical Director for a period if called upon. Further details from Medical Director.

Applications (no forms) to undersigned by 13th March, stating age, qualifications, experience, with copies of up to 2 recent testimonials and names of 2 referees (quoting D.686.L.).

C. W. RADCLIFFE, Clerk of the County Council.

Middlesex Guildhall, S.W.1.

MIDDLESEX COUNTY COUNCIL. Chase Farm Hospital, ENFIELD, MIDDLESEX.

(*a*) 2 SENIOR HOUSE SURGEONS (B2, resident) required 1st and 9th April respectively. Registered medical practitioners, including R practitioners now holding A posts. Salary £250 p.a., plus any temporary bonus (now £30 p.a., cash), board, lodging, laundry. 6 months' appointment. Whole-time general surgical duties under supervision of Medical Director.

(*b*) LOCUM TENENS SENIOR RADIOLOGIST, from 15th to 27th March inclusive, full-time, non-resident post. Salary £13 13s. per week, plus non-resident allowance of £2 2s. per week.

Applications (no forms), stating age, qualifications, experience, to Medical Director of Hospital (*a*), with copies of up to 3 recent testimonials, by 17th March, 1948 (*b*) immediately (quoting D.687.L.). C. W. RADCLIFFE, Clerk of the County Council.

Middlesex Guildhall, S.W.1.

MIDDLESEX COUNTY COUNCIL. Hillingdon County Hospital, near UXBRIDGE, MIDDLESEX.

(*a*) CASUALTY OFFICER (B2, Male) required, vacant 1st April. Registered medical practitioners who have held house appointments, and had good all-round experience (including R practitioners holding A posts). Salary £350 p.a. Whole-time duties, under Medical Director, include casualties and admissions to hospital and such other duties as may be required.

(*b*) SENIOR HOUSE OFFICER (B2, resident, Male) for obstetric duties, vacant end of March. Previous obstetric experience desirable but not essential.

(*c*) SENIOR HOUSE OFFICER (Anæsthetist; B2, resident, Male), vacant middle of March. Whole-time duties such as Council may require, mainly in anæsthetics, under supervision of Medical Director. Previous experience in anæsthetics essential.

(*b*) and (*c*) Registered medical practitioners who now hold A posts. Salary £250 p.a. All salaries plus any temporary bonus (now £30 p.a., cash), board, lodging, laundry. 6/12 months' appointments (except for R practitioners). Subject to medical examination.

Applications (no forms), stating age, nationality, qualifications, experience, with copies of up to 3 recent testimonials, to Medical Director of Hospital by 15th March, 1948 (quoting D.690.L.).

C. W. RADCLIFFE, Clerk of the County Council.

Middlesex Guildhall, S.W.1.

HOUNSLOW HOSPITAL, Middlesex. The Board of Management invites applications for post of PÆDIATRIC PHYSICIAN to the Hospital.

Applications, with the names of 3 referees, should be sent by 20th March, 1948, to the Secretary-Superintendent, from whom further particulars may be obtained.

KING EDWARD MEMORIAL HOSPITAL, Ealing. House Surgeon (A) to the Orthopædic and Fracture Dept., vacant now. 6 months' appointment. Salary £175 p.a., full residential emoluments.

Applications, stating age, nationality, qualifications with dates, and details of experience, with copies of 2 recent testimonials, should be sent immediately to—

R. A. MICKELWRIGHT, House Governor.

KING EDWARD MEMORIAL HOSPITAL, Ealing. Resident ANÆSTHETIST (B2), Male or Female, vacant 11th March, 1948. Salary £250 p.a., full residential emoluments. Appointment recognised for D.A.

Applications, stating age, nationality, qualifications with dates, and details of experience, with copies of 2 recent testimonials, should be sent immediately to—

R. A. MICKELWRIGHT, House Governor.

KING EDWARD MEMORIAL HOSPITAL, Ealing. Resident SURGICAL OFFICER (B1), vacant 1st April, 1948. Applicants should have held house appointments and had surgical experience. Preference given to candidates holding diploma of F.R.C.S. Salary £450 p.a., full residential emoluments.

Applications, stating age, nationality, qualifications with dates, and details of experience, with copies of 2 recent testimonials, should be sent by 13th March, 1948, to—

R. A. MICKELWRIGHT, House Governor.

KING EDWARD MEMORIAL HOSPITAL, Ealing. House Surgeon (A) to the Second Surgeon and E.N.T. Surgeons, vacant 17th April, 1948. 6 months' appointment. Salary £175 p.a., full residential emoluments.

Applications, stating age, nationality, qualifications with dates, and details of experience, with copies of 2 recent testimonials, should be sent by 5th April, 1948, to—

R. A. MICKELWRIGHT, House Governor.

KING GEORGE HOSPITAL, Ilford. There is a vacancy for a CLINICAL ASSISTANT to the Orthopædic Dept. for 2 sessions weekly in the Outpatient Dept. Fee 3 guineas per session payable.

Applications should be addressed by 31st March to—

G. AUSTIN HEPWORTH, Secretary and Superintendent.

BOROUGH OF BARKING. Resident Medical Officer, Barking AND UPNEY (MATERNITY) HOSPITAL. Previous medical appointments of this nature are desirable. Salary scale £455 p.a., by annual increments of £25 p.a. to a maximum of £555 p.a., plus cost-of-living bonus and emoluments valued £150 p.a. Appointment subject to provisions of Local Government and Other Officers Superannuation Act, 1937, and to satisfactory medical examination. Applications from R practitioners holding B1 appointments cannot be considered unless ineligible for H.M. Forces.

Application forms and conditions of service may be obtained from the M.O.H., Town Hall, Barking, Essex, and should be returned by 8th March, 1948, to: E. R. FARR, Town Clerk.

Town Hall, Barking, Essex.

BRENTWOOD MENTAL HOSPITAL, Brentwood, Essex. Resident HOUSE PHYSICIAN (B2). Appointment affords excellent opportunities for gaining experience in modern methods of psychiatric treatment. Applicants should have held the post of House Surgeon. There is no accommodation for females or for a married man. Salary £300 p.a. for the 6 months and £350 p.a. for a second 6 months, full residential emoluments. To R practitioners appointment limited to 6 months.

Applications, stating age, experience, &c., with names of 3 referees, to the Medical Superintendent by 20th March, 1948.

SUTTON AND CHEAM GENERAL HOSPITAL, Sutton, Surrey. Applications invited for post of HONORARY OBSTETRICAL SURGEON to be in charge of the new Maternity Unit, of approximately 26 Beds, shortly to be opened in Cedar-road, Sutton. The Obstetrical Surgeon will also be required to be in charge of the Antenatal Clinic to be opened in connexion with the above Unit. Further particulars can be obtained by application to the Secretary.

Applications, stating age, place of birth, special qualifications, and accompanied by 3 recent testimonials, should be sent to Secretary by 13th March, 1948.

SURREY COUNTY COUNCIL. Kingston County Hospital, Wolverton-avenue, KINGSTON-ON-THAMES. (450 Beds.) Applications invited from suitably qualified medical practitioners, including those serving in H.M. Forces, for appointment of ASSISTANT MEDICAL OFFICER (B1) in Pædiatric Dept. Candidates must have experience in house appointments and preferably some experience in the treatment of children's diseases. Salary £350, £400, or £450 p.a., according to qualifications and experience, plus bonus and full residential emoluments. Appointment for 6 months from 1st April, 1948, renewable for a second period of 6 months.

Applications by letter, stating age, qualifications, and experience, with a copy of 1–3 recent testimonials, should reach the Medical Superintendent of the Hospital by 6th March, 1948.

SURREY COUNTY COUNCIL. 2 House Physicians (A) required at Netherne Hospital, for Mental and Nervous Diseases, Coulsdon, Surrey. Applicants must have held house appointments in a general hospital. The teaching associated with the posts will enable the successful applicants to become acquainted with all the modern forms of mental treatment and to gain some knowledge of the neuroses and psychoses. There are opportunities for promotion with a view to future specialisation. Salary between £350 and £450 p.a. (depending on the length of qualification) and all found. Appointment for 6 months, which may be renewed for one further period (except in the case of R practitioners).

Applications to be sent to the Medical Superintendent, Netherne Hospital, Coulsdon, with copies of 2 testimonials, by 13th March, 1948.

KING EDWARD VII HOSPITAL, Windsor. (200 Beds.) Casualty OFFICER, Male or Female, vacant 13th April, 1948. To R practitioners appointment limited to 6 months. Salary £150 p.a., full residential emoluments. Duties include Assistant to the Resident Accident Service Officer, also House Surgeon to Eye and Dental Departments.

Applications, with copies of recent testimonials, stating age, qualifications with dates, and nationality, should be sent to the Secretary as soon as possible.

ROYAL BERKSHIRE HOSPITAL, Reading. 2 Casualty Officers (A). Male. Salary £150 p.a., full residential emoluments. Duties will involve alternating with each other in the Casualty Dept., Fracture Clinic, and Accident Wards, and assisting in the treatment of all cases of traumatic origin. To R practitioners appointment for 6 months.

Applications, stating age, qualifications with dates, nationality, and present post, and accompanied by copies of 3 testimonials, immediately to the House Governor.

ROYAL BERKSHIRE HOSPITAL, Reading. The Board of Management invites applications for appointment of HONORARY ASSISTANT PHYSICIAN. Candidates must be Fellows or Members of the Royal College of Physicians, London, or medical graduates of one of the universities of the British Empire and their names entered on the Medical Register.

Candidates are required to provide 6 copies of their applications and testimonials which should be addressed to the House Governor and reach him by 27th March, 1948. No testimonials will be required from candidates who are members of the existing medical staff. The present Medical Registrar is a candidate for the post. Canvassing on the part of a candidate, or on his behalf, will disqualify him. By Order,

12th February, 1948. H. E. RYAN, House Governor.

ROYAL BERKSHIRE HOSPITAL, Reading. House Surgeon (A), Male, as from 6th March, 1948 Salary £150 p.a., full residential emoluments. To R practitioners appointment for 6 months.

Applications, stating age, qualifications with dates, nationality, and present post, and accompanied by copies of 3 recent testimonials, should be sent immediately to the House Governor.

ROYAL BERKSHIRE HOSPITAL, Reading. Resident Anæsthetist (B2), Male, vacant immediately. Salary £200 p.a., full residential emoluments. To R practitioners appointment limited to 6 months.

Applications, stating age, qualifications with dates, nationality, and present post, and accompanied by copies of 3 recent testimonials, should be sent immediately to—

H. E. RYAN, House Governor.

ROYAL BERKSHIRE HOSPITAL, Reading. Resident Assistant PATHOLOGIST (A), Male. Salary £150 p.a., full residential emoluments. Previous experience in pathology not necessary. To R practitioners appointment for 6 months.

Applications, stating age, qualifications with dates, nationality, and present post, with copies of 3 recent testimonials, should be sent immediately to: H. E. RYAN, House Governor.

CANADIAN RED CROSS MEMORIAL HOSPITAL, Taplow, MAIDENHEAD, BERKS. Applications invited from registered medical practitioners holding a Diploma in Radiology for post of Whole-time NON-RESIDENT RADIOLOGIST in the X-ray Diagnostic Dept. The Hospital will ultimately have a bed complement of over 400 (at present 235), approximately half of which are in the Special Unit devoted to the study and treatment of juvenile rheumatism and the remainder to acute sick and maternity cases. Salary £1200–£1500 p.a., according to experience with membership of the Federated Superannuation Scheme. Appointment subject to 3 months' notice on either side.

Applications in writing, stating nationality, age, qualifications, and experience, and enclosing copies of 3 recent testimonials, should reach undersigned by 31st March, 1948.

JOHN R. GRIFFITH, House Governor.

CANADIAN RED CROSS MEMORIAL HOSPITAL, Taplow, MAIDENHEAD, BERKS. Applications invited for post of Whole-time NON-RESIDENT RESEARCH BACTERIOLOGIST in the special unit of the Hospital. The Hospital will ultimately have over 400 Beds (at present 235). Approximately half of these are devoted to the special unit for the study and treatment of juvenile rheumatism. Salary at a point according to experience on the scale £900, by annual increments of £50 to £1100 a year, with membership of the Federated Superannuation Scheme.

Applications in writing, stating nationality, age, qualifications, and experience, with the names of 3 persons to whom reference may be made, should be sent immediately to—

JOHN R. GRIFFITH, House Governor.

OXFORD EYE HOSPITAL, in association with The Royal BERKSHIRE HOSPITAL, READING. Applications invited from registered medical practitioners, with some previous experience, for appointment of OPHTHALMIC HOUSE SURGEON (B2), vacant 1st April. Appointment for 6 months at the Oxford Eye Hospital, followed by 6 months at the Royal Berkshire Hospital, and the successful candidate will then be eligible for appointment as Senior Resident Officer (B1) at the Oxford Eye Hospital for 6 months. Salary commences at £200 p.a., full residential emoluments.

Applications should be sent forthwith to—

C. F. SHARE, Secretary.

OXFORDSHIRE COUNTY COUNCIL. Health Department. Applications for post of DEPUTY COUNTY MEDICAL OFFICER invited from registered medical practitioners holding the D.P.H. Duties mainly administrative, and appointee will work under the direction of the County Medical Officer and be required to take charge of the Health Dept. during his absence. Salary £810 p.a., by 2 annual increments of £50 and £40 to £900 p.a., plus cost-of-living bonus. Commencing salary according to experience and within this range. The officer appointed should possess and be able to drive a car, and will be paid travelling expenses on the Council's scale. Appointment subject to Local Government Superannuation Act, 1937, or National Health Service (Superannuation) Regulations, 1947, and terminable by 3 months' notice in writing on either side. Successful candidate required to pass medical examination and to take up his duties as soon after 1st April, 1948, as possible.

Forms of application may be obtained from the County Medical Officer of Health, 1, Becket-street, Oxford, and when completed should be returned to him, with copies of 3 recent testimonials, by 20th March, 1948.

County Hall, Oxford. F. G. SCOTT, Clerk of the Council.

WESTON-SUPER-MARE GENERAL HOSPITAL. (100 Beds.) Applications invited from medical practitioners for appointments of HOUSE SURGEON (A) and HOUSE PHYSICIAN (A). Duties to commence: House Surgeon immediately, and House Physician from 1st March, 1948. Salary for both posts £200 p.a., full residential emoluments. To R practitioners appointment for 6 months.

Applications, stating age, qualifications with dates, and nationality, with copies of 3 recent testimonials, should be addressed to: LESLIE J. FURSLAND, Secretary.

ROYAL SUSSEX COUNTY HOSPITAL, Brighton, 7. (310 Beds—9 Resident Medical Officers.) Applications invited from registered medical practitioners for following posts :—

(1) CASUALTY HOUSE SURGEON (B1), vacant about the end of February. Salary £250 p.a., full residential emoluments.

(2) E.N.T. HOUSE SURGEON (B2), now vacant. Appointment limited to 6 months to R practitioners. Salary £200 p.a., full residential emoluments.

In the case of the Casualty House Surgeon, the successful candidate will, if desired, be favourably considered for one of the appointments of House Surgeon on the termination of appointment as Casualty House Surgeon.

Applications, together with copies of 3 recent testimonials, should be sent to the Secretary-Superintendent immediately.

EAST SUSSEX COUNTY COUNCIL. Southlands Hospital, SHOREHAM-BY-SEA. RESIDENT SURGICAL OFFICER. Candidates should have had experience in operative surgery and be capable of dealing with routine emergency work. Salary £500–£600 p.a. according to experience. Cost-of-living bonus payable in addition to salary, in accordance with the scale approved by the County Council from time to time, at present in the case of resident staff, 11s. 6d. per week. Full residential emoluments provided. Appointment subject to provisions of Local Government Superannuation Act, 1937, and the candidate to be successful must pass a medical examination. Appointment full-time and subject to (*a*) 1 month's notice on either side, and (*b*) such conditions of service as may from time to time be approved on behalf of the County Council.

Application forms should be obtained from and returned, as soon as possible, to the Medical Superintendent, Southlands Hospital, Shoreham-by-Sea.

H. S. MARTIN, Clerk of the County Council.

County Hall, Lewes, 14th February, 1948.

ROYAL EAST SUSSEX HOSPITAL, Hastings. House Surgeon (A), vacant 30th March, 1948. Salary £200 p.a., full residential emoluments. To R practitioners appointment for 6 months.

Applications should be sent to—

WILFRID G. KEMSLEY, Secretary and House Governor.

ROYAL EAST SUSSEX HOSPITAL, Hastings. Resident Surgical OFFICER (B1), vacant 30th March, 1948. This is the senior resident appointment of the Hospital, and applications are invited from persons who possess a higher degree or are working to obtain one. Salary £400 p.a., full residential emoluments.

Applications to be received by 6th March.

WILFRID G. KEMSLEY, Secretary and House Governor.

THE STAMFORD, RUTLAND AND GENERAL INFIRMARY. Applications invited from registered practitioners, Male and Female, for following appointments :—

HOUSE SURGEON (B2), now vacant. Salary £300 p.a., full residential emoluments.

HOUSE SURGEON (A), now vacant. Salary £200 p.a., full residential emoluments.

To R practitioners appointments for 6 months.

Applications, stating age, qualifications with dates, nationality, and accompanied by copies of 3 recent testimonials, should be sent immediately to the Secretary, H. F. DONALD, The Infirmary, Stamford.

WORCESTERSHIRE COUNTY COUNCIL. Applications invited from duly qualified medical Women holding the D.P.H. for the new appointment of SENIOR ADMINISTRATIVE MEDICAL OFFICER for maternity and child welfare. Appointee will act under the general direction of the County Medical Officer and be engaged in the main on administrative duties, although some clinical work will be included. Salary £975, rising by £50 biennially to £1162 10s. p.a., cost-of-living bonus. Appointment superannuable and subject to satisfactory medical examination. Successful applicant required to reside in or near Worcester and should be in possession of and be able to drive a car, for which a travelling allowance in accordance with the Council's scale will be paid. Appointment terminable by 3 months' notice by either party.

Applications, on forms to be obtained from the County Medical Officer, County Buildings, Worcester, should be submitted with 1–3 recent references by 24th March, 1948.

W. R. SCURFIELD, Clerk of the Council.

Shirehall, Worcester, February, 1948. (Q.77.)

WORCESTERSHIRE COUNTY COUNCIL. Mental Health SERVICES. Applications invited from duly qualified medical practitioners holding a D.P.M., who have had extensive experience of mental illness, particularly in children, for appointment of SENIOR ADMINISTRATIVE MEDICAL OFFICER. The holding of a certificate of recognised training in child psychiatry desirable. Appointee will act under the general direction of the County Medical Officer (who is also School Medical Officer) and will be required to undertake certain clinical duties and to advise the appropriate subcommittees on the mental health services, and to give medical direction to the team of workers employed on these duties. Salary £1200 p.a., cost-of-living bonus. Appointment superannuable and subject to satisfactory medical examination. Successful applicant required to reside in or near Worcester, and should be in possession of and be able to drive a car, for which a travelling allowance in accordance with the Council's scale will be paid. Appointment terminable by 3 months' notice by either party.

Applications, on forms to be obtained from the County Medical Officer, County Buildings, Worcester, should be submitted with 1–3 recent references by 24th March, 1948.

W. R. SCURFIELD, Clerk of the Council.

Shirehall, Worcester, February, 1948. (Q.78.)

HINCKLEY AND DISTRICT HOSPITAL, Leicestershire. There will be a vacancy for RESIDENT HOUSE SURGEON AND CASUALTY OFFICER (B2), Male or Female, on 8th March, 1948. Salary £300 p.a., full residential emoluments. To R practitioners appointment for 6 months; otherwise may be extended.

Applications to Secretary-Superintendent, with copies of 3 recent testimonials.

CHELTENHAM GENERAL EYE AND CHILDREN'S HOSPITAL. (215 Beds.) HOUSE SURGEON (A), Male. To R practitioners appointment for 6 months; otherwise renewable. Salary £175 p.a., full residential emoluments.

Applications should be sent to—

S. T. DAVIS, Secretary-Superintendent.

COUNTY BOROUGH OF MIDDLESBROUGH. Middlesbrough GENERAL HOSPITAL. (355 Beds.) Applications invited for following appointments at the above Acute General Hospital :—

HOUSE PHYSICIAN (A). HOUSE SURGEON (A).

Salary in both cases £200 p.a., full residential emoluments. Successful candidates required to pass medical examination. To R practitioners appointments limited to 6 months; otherwise 12 months.

Applications should be sent by 3rd March, 1948, to the M.O.H., Municipal Buildings, Middlesbrough, from whom further information may be obtained. E. C. PARR, Town Clerk.

Municipal Buildings, Middlesbrough, 9th February, 1948.

CITY OF STOKE-ON-TRENT. Applications invited from registered medical practitioners (Male or Female), with obstetrical experience and preferably a higher diploma in obstetrics, for position of RESIDENT MEDICAL OFFICER at the City Maternity Hospital, Hartshill (46 Beds, Part II Training School, C.M.B.). Commencing salary £500 p.a., by annual increments of £25 to £700 p.a., plus emoluments valued at £150 p.a. and bonus. Appointee will be attached to the staff of the City General Hospital, Stoke-on-Trent, under the Consultant Obstetrician and Medical Superintendent. Duties include attendance at certain antenatal and infant welfare clinics in the city. Further particulars may be obtained from Dr. C. Gordon Lewis, Medical Superintendent of the City General and City Maternity Hospitals, Stoke-on-Trent.

Applications, enclosing copies of 3 recent testimonials, should be forwarded as soon as possible to : HARRY TAYLOR, Town Clerk.

THE BURSLEM HAYWOOD AND TUNSTALL WAR MEMORIAL HOSPITAL, High-lane, TUNSTALL, STOKE-ON-TRENT. HOUSE SURGEON (B2), Male or Female. To R practitioners appointment limited to 6 months. Salary £225 p.a., full residential emoluments.

Applications should be forwarded as soon as possible to—

C. E. LOWNDES, Secretary.

CHESHIRE COUNTY COUNCIL. Applications invited for appointment of Full-time RESIDENT MEDICAL OFFICER at the Barony Hospital, Nantwich, a hospital for the treatment of chronic sick cases (396 Beds). At present the duties of the office are as prescribed by Article 170 of the Public Assistance Order, 1930, and appointee will be required to enter into a contract of service. Remuneration in accordance with modified interim Askwith scale, commencing at £472 10s. p.a., rising, subject to satisfactory service, by £25 annually to £572 10s. p.a., board, lodging, &c. Appointment subject to the County Council's standing orders and regulations affecting their staffs. Salary and emoluments subject to deductions provided for by the Local Government Superannuation Act, 1937.

Application forms, particulars of duties, and conditions of appointment may be obtained from undersigned, to whom completed applications should be returned by 8th March, 1948.

WILLIAM H. OWEN, County Public Assistance Officer.

50, Hough Green, Chester.

THE CHESTER ROYAL INFIRMARY. (225 Beds.) House Surgeon (B2) required for the Gynæcological and E.N.T. Depts., to commence duties 14th April. Salary £200 p.a., full residential emoluments. To R practitioners appointment limited to 6 months.

Applications, with full particulars, to be sent to the General Superintendent and Secretary.

THE CHESTER ROYAL INFIRMARY. Resident Anæsthetist (B2) required, to commence as soon as possible. Salary £300 p.a., full residential emoluments. To R practitioners appointment limited to 6 months.

Applications, with full particulars, to be sent to the General Superintendent and Secretary.

BRISTOL MENTAL HOSPITALS. Barrow Hospital. Senior PSYCHIATRIC PHYSICIAN and/or DEPUTY MEDICAL SUPERINTENDENT. Applications invited for post of Senior Psychiatric Physician to the Barrow Hospital (Barrow Gurney) unit of Bristol Mental Hospital. A candidate might be nominated for post of Deputy Medical Superintendent, now vacant, if of sufficient experience. Salary scale, according to qualifications and experience, within range £1150–£1500 (which includes £50 for D.P.M.), plus cost-of-living bonus, and house, coal, light, and laundry, valued for superannuation purposes at £250 p.a. Applicants must possess the D.P.M. and should have a higher qualification as well. Post offers considerable opportunities in all branches of general psychiatry, research, and clinical teaching. Hospital has departments of electro-encephalography and psychology, with clinical research laboratories now being extended; the main research unit at present is at the old hospital at Fishponds.

Applications, accompanied by 3 recent testimonials, should be sent as soon as possible to the Medical Superintendent, Bristol Mental Hospital, Fishponds, Bristol.

BRISTOL EYE HOSPITAL. Resident Junior Ophthalmic House SURGEON (B2), Male or Female, vacant 1st May, 1948. To R practitioners appointment limited to 6 months. Salary £150–£175 p.a., according to experience of applicant, with full residential emoluments.

Applications, stating age, qualifications with dates, nationality, and present post, accompanied by 3 recent testimonials, should be sent by 27th March, to—

D. M. BABER, Secretary and House Governor.

CHELMSFORD AND ESSEX HOSPITAL, London-road, Chelms-FORD. (170 Beds.) Applications invited for post of HONORARY PATHOLOGIST. Present acting Pathologist is an applicant for the post.

Applications, with recent testimonials, to be sent to—

R. G. MORRISH, House Governor and Secretary.

CITY OF PLYMOUTH. Receiving Room Officer (A), Male or Female, at the City General Hospital, Plymouth. (450 Beds.) Appointment for 6 months and terminable by 1 month's notice on either side at any time. Salary £250 p.a., plus full residential emoluments and war bonus. All fees other than this, received by the officer, must be refunded to the Council. Further information may be obtained from the Medical Superintendent.

Applications, stating age, nationality, qualifications, and experience, with copies of 1–3 recent testimonials, should be sent as soon as possible to—

T. PEIRSON, Medical Officer of Health.

Seven Trees, Lipson-road, Plymouth.

THE PRINCE OF WALES'S HOSPITAL, Plymouth. Applications invited from registered medical practitioners, Male or Female, preferably with the D.A., for appointment of RESIDENT ANÆSTHETIST (B2), vacant 13th April. Salary £250 p.a., full residential emoluments. To R practitioners appointment limited to 6 months.

Applications, with testimonials, to reach undersigned as soon as possible. ARTHUR R. CASH, General Superintendent.

Head Office, Greenbank-road, Plymouth.

THE PRINCE OF WALES'S HOSPITAL, Plymouth. Casualty OFFICER (A) with E.N.T., vacant 17th March. Salary £175 p.a., full residential emoluments. To R practitioners appointment for 6 months.

Applications to: ARTHUR R. CASH, General Superintendent.

Head Office, Greenbank-road, Plymouth.

SOUTHPORT GENERAL INFIRMARY. (156 Beds.) Orthopædic HOUSE SURGEON AND CASUALTY OFFICER (B1), to commence immediately, for 6 months. Applicants should have held house appointments and have had orthopædic experience. Salary £225 p.a., full residential emoluments.

Applications, stating age, qualifications, with dates and nationality, and accompanied by copies of recent testimonials, should be sent to: Superintendent and Secretary.

BEDFORDSHIRE COUNTY COUNCIL. St. Peter's Hospital, BEDFORD. ASSISTANT RESIDENT MEDICAL OFFICER (B2), Male or Female. Salary £250 p.a., with cost-of-living bonus (at present £59 16s.). If non-resident, an allowance of £100 p.a. will be made in lieu of board and lodging. To R practitioners appointment limited to 6 months. In the event of a demobilised Medical Officer being appointed, application will be made for upgrading under the scheme.

Applications should be addressed to the County Medical Officer, Shire Hall, Bedford, from whom further particulars may be obtained, in order to reach him by 13th March, 1948.

J. B. GRAHAM, Clerk of the County Council.

Shire Hall, Bedford, 6th February, 1948.

BEDFORD COUNTY HOSPITAL. Applications invited from registered medical practitioners F.R.C.S. (Male) for post of RESIDENT SURGICAL OFFICER (B1), vacant immediately. Salary £500 p.a., full residential emoluments.

Applications to be sent to: H. R. NEATE, Secretary.

PARK PREWETT MENTAL HOSPITAL, Basingstoke, Hants. DEPUTY MEDICAL SUPERINTENDENT. Candidates must have had considerable experience in psychiatry, including both inpatient and outpatient work. Salary £1100 p.a., plus emoluments valued at £109 19s. 4d., consisting of house, rates, water, fuel, and light. Salary may be reviewed following the report of the committee now considering the salaries of Medical Officers. Bonus in addition at present £49 16s. 8d.

Applications should be made on a form to be obtained from the Medical Superintendent, Park Prewett Mental Hospital, Basingstoke, returnable by 15th March, 1948.

ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL, SOUTHAMPTON. (290 Beds.) Applications invited for post of PHYSICIAN-IN-CHARGE of the Physical Medicine Dept. Applicants should hold the D.Phys.Med. Previous experience in the treatment of industrial injury an advantage. Post full time, non-resident. Commencing salary £1500 p.a., with participation in the superannuation scheme.

Applications, with the names of 3 referees, should be addressed to undersigned, from whom further information can be obtained.

FRANK JENNINGS, House Governor and Secretary.

ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL, SOUTHAMPTON. Applications invited for post of ASSISTANT PATHOLOGIST. Post is whole time and applicants should have had considerable experience in clinical pathology. Salary within the range of £1300–£1500 p.a. (non-resident), according to experience, and the post will carry superannuation benefits.

Applications, with copies of 3 testimonials or names of 3 referees, should be addressed to undersigned, from whom further particulars may be obtained.

FRANK JENNINGS, House Governor and Secretary.

ROYAL VICTORIA AND WEST HANTS HOSPITAL, Bourne-MOUTH. (374 Beds.) HOUSE SURGEON (A). Duties include work in Specialist Depts. Appointment for 6 months. Salary £175 p.a., full residential emoluments.

Applications, stating age, qualifications, nationality, whether single or married, with copies of 3 recent testimonials, should be sent by 6th March, 1948, to: GORDON M. SAUL, Secretary.

SOUTHEND-ON-SEA GENERAL HOSPITAL. Gynæcological HOUSE SURGEON (B2), vacant 1st March. Salary £200 p.a., full residential emoluments. To R practitioners appointment limited to 6 months.

Applications, stating age, qualifications, and experience, with copies of 3 recent testimonials, to reach undersigned immediately. JOHN WILLIAMS, House Governor and Secretary.

ADDENBROOKE'S HOSPITAL, Cambridge. House Surgeon (B2), Male or Female, to the Special Depts.—gynæcology, obstetrics, and ophthalmology—vacant 11th April, 1948. Salary £200 p.a., full residential emoluments. To R practitioners appointment limited to 6 months, which is the normal period of appointment.

Applications, together with copies of 3 recent testimonials, should be sent by 10th March, 1948, to—

J. A. BEARDSALL, Secretary-Superintendent.

BECKENHAM HOSPITAL, Beckenham, Kent. House Surgeon (A), Male, to commence duty 1st March next. Salary £150 p.a., full residential emoluments. To R practitioners appointment for 6 months; otherwise renewable, at the discretion of the Hospital, for a further 6 months.

Applications, stating age, nationality, and qualifications with, full details of experience and copies of 3 recent testimonials, to be forwarded as soon as possible to—

GORDON EASTO, Secretary.

THE ROYAL HOSPITAL, Wolverhampton. (Incorporated under Royal Charter.) (500 Beds—General Hospital Branch 310 Beds.) SENIOR RESIDENT ANÆSTHETIST, vacant now. The Royal Hospital is an associated hospital of the University of Birmingham. Salary £400 p.a., full residential emoluments, or according to experience and qualifications. Appointment for 6 months.

Applications to: W. COCKBURN, House Governor.

THE ROYAL HOSPITAL, Wolverhampton. (Incorporated under Royal Charter.) (500 Beds.) The Board of Management invites applications for post of HONORARY RADIOTHERAPIST at The Royal Hospital, Wolverhampton. Applicants must have had special experience in radiotherapy, and confine themselves to consulting practice. Remuneration subject for arrangement between successful applicant and Board of Management, and will be based on experience of successful candidate, but not less than £1000 p.a. The Royal Hospital, Wolverhampton, is an associated Hospital of the University of Birmingham.

Applications must be received on or before 1st April, 1948, and should be sent to: W. COCKBURN, House Governor.

20th February, 1948.

ROYAL CORNWALL INFIRMARY, Truro. Junior House PHYSICIAN (A), Male or Female, vacant 23rd March, 1948, for 6 months, combining duties as House Surgeon to the E.N.T. and Eye Depts. Salary £200 p.a., residential emoluments.

Applications, with testimonials, to the Secretary-Superintendent.

ROYAL CORNWALL INFIRMARY, Truro. Orthopædic and CASUALTY HOUSE SURGEON (B2), Male or Female, vacant 1st April next. Salary £200 p.a., residential emoluments. To R practitioners appointment limited to 6 months.

Applications, with copies of testimonials, to the Secretary-Superintendent.

WEST CORNWALL HOSPITAL, Penzance. Applications invited from ex-Service specialists for appointment of ASSISTANT PATHOLOGIST approved by the Ministry of Health under Circular 202/46. Post is full time and private practice not permitted. Salary £1000 p.a. The Assistant Pathologist will work under the general direction of the Honorary Pathologist to the Hospital and will be an Assistant Member of the Area Laboratory Staff when this is established.

Applications, with particulars of qualifications and experience, together with testimonials, must reach the undersigned by 15th March, 1948. K. I. NEWELL, Secretary-Superintendent.

CAMBORNE-REDRUTH MINERS' AND GENERAL HOSPITAL, REDRUTH, CORNWALL. HOUSE PHYSICIAN (A), Male or Female, vacant 1st April, 1948. Salary £200 p.a., usual residential emoluments. To R practitioners appointment for 6 months.

Applications, together with copies of 3 testimonials, should be addressed to: J. C. FIELD, Secretary-Superintendent.

POOLE GENERAL HOSPITAL (Cornelia and East Dorset HOSPITAL). (188 Beds.) HOUSE SURGEON (B2), Male or Female, vacant 16th March, 1948. To R practitioners appointment limited to 6 months. Salary £300 p.a., full residential emoluments. Hospital recognised by the Royal College of Surgeons.

Applications to: T. S. JACKSON, Secretary.

LINCOLN COUNTY HOSPITAL. The Board of Management invite applications for post of PHYSICIAN in charge of a Cardiological Dept. Successful candidate expected to confine himself to consulting practice.

Applications, stating age, qualifications, and experience, with copies of 3 testimonials, should be sent by 6th March, 1948, to the Secretary-Superintendent. Canvassing will disqualify.

LINCOLN COUNTY HOSPITAL. Resident Anæsthetist. Successful candidate will be called upon to undertake some duties as a Casualty Officer. Hospital recognised as a qualifying Hospital for the D.A.

Applications, stating age, qualifications, and experience, with copies of 3 recent testimonials, should be sent immediately to the Secretary-Superintendent.

LINCOLN COUNTY HOSPITAL. The Board of Management invite applications for the following Honorary posts:—

ASSISTANT PHYSICIAN. A special interest in neurology would be an advantage. The successful candidate will be expected to confine himself to consulting practice.

ASSISTANT SURGEON. The successful candidate will be expected to confine himself to consulting practice.

CONSULTING PSYCHIATRIST.

Applications, stating age, qualifications, and experience, with copies of 3 testimonials, should be sent by 6th March to the Secretary-Superintendent. Canvassing will disqualify.

LINCOLNSHIRE JOINT BOARD FOR THE MENTALLY DEFEC-TIVE, HARMSTON HALL COLONY, near LINCOLN. Applications invited for post of DEPUTY MEDICAL SUPERINTENDENT of the Colony and Ancillary Branches, providing accommodation for 945 mental defectives of all grades. Salary £750, rising to £800 by 2 annual increments of £25, with emoluments valued at £100. Residential accommodation for a single person is available. Asylums and Certified Institutions (Officers Pensions) Act applies. Travelling allowances paid in accordance with the Board's scale.

Applications, giving full particulars of training, qualifications, and experience, with copies of 2 recent testimonials, should be received not later than 6th March, 1948, by—

H. COPLAND, Clerk to the Joint Board.

County Offices, Lincoln.

CITY OF BIRMINGHAM, Dudley Road Hospital. (Municipal General Hospital—1050 Beds.) HOUSE SURGEON (A), Male or Female, vacant the middle of March. Salary £250 p.a., plus residential emoluments. This is approved as a resident post required for the final F.R.C.S. (Eng.).

Applications, stating age, qualifications, nationality, and experience, with copies of 3 recent testimonials, should be sent to the Medical Superintendent, Dudley Road Hospital, Birmingham, 18, as soon as possible.

CITY OF BIRMINGHAM, Dudley Road Hospital. (Municipal General Hospital—1050 Beds.) HOUSE SURGEON (A), Male or Female, in the Gynæcological and Obstetrical Dept., vacant the middle of March. Salary £250 p.a., plus residential emoluments. This is approved as a resident post required for the D.R.C.O.G.

Applications, stating age, qualifications, nationality, and experience, with copies of 3 recent testimonials, should be sent to the Medical Superintendent, Dudley Road Hospital, Birmingham, 18, as soon as possible.

CITY OF BIRMINGHAM. Monyhull Colony for Mental Defectives AND RESIDENTIAL SPECIAL SCHOOL, KING'S HEATH, BIRMINGHAM, 14. RESIDENT JUNIOR ASSISTANT MEDICAL OFFICER (B1). Salary £455–£25–£555 p.a., plus war bonus, with full residential emoluments and £50 p.a. to holder of D.P.M. Appointment subject to Asylums and Certified Institutions (Officers Pensions) Act, 1918, and successful candidate passing medical examination.

Applications, stating age, present appointment, experience, and qualifications, with names of 3 referees, to—

C. J. C. EARL, Medical Superintendent.

CITY OF BIRMINGHAM. Public Health Department. Anti-TUBERCULOSIS CENTRE. Applications invited for whole-time non-resident appointment of ASSISTANT TUBERCULOSIS OFFICER. Candidates should have had considerable experience of tuberculosis work and of the general duties of a tuberculosis dispensary. Salary £675–£25–£875 p.a., plus cost-of-living bonus. Appointment subject to passing of medical examination, to Local Government Superannuation Act, 1937, to the Widows and Orphans Pension Scheme (if applicable), and to 1 month's notice on either side.

Applications, stating age, qualifications, and experience, with copies of 3 testimonials, should be addressed to the M.O.H., P.H. Dept., The Council House, Congreve-street, Birmingham, 3, by 18th March, 1948.

CITY OF COVENTRY. Health Department. Applications invited from registered Women medical practitioners for vacant post of SENIOR ASSISTANT MEDICAL OFFICER for maternity and child welfare. Candidates should hold the D.P.H. or equivalent, and have had considerable administrative experience in all branches of maternity and child welfare work. Possession of either the D.R.C.O.G. or the D.C.H. considered an advantage. Appointee will be responsible to the M.O.H. for the administration of the maternity and child welfare service of the Dept., but may be required to carry out such other duties of the Dept. as the M.O.H. may direct. Salary £900 p.a., by 3 annual increments of £50 and 1 of £37 10s. to £1087 10s., plus cost-of-living bonus at present £48 2s. Salary now under consideration in the light of Ministry of Health Circular 12/48. A car allowance is also paid in accordance with the Council's scale. Appointment subject to the Local Government Superannuation Act, 1937, and successful applicant required to pass medical examination and to contribute to the superannuation fund.

Applications, stating age, qualifications, and experience, and supported by copies of 2 recent testimonials, should be sent by 13th March, 1948, to: T. M. CLAYTON, Medical Officer of Health.

The Council House, Coventry, 20th February, 1948.

COVENTRY AND WARWICKSHIRE HOSPITAL. Applications are invited for following positions (Male or Female):—

HOUSE SURGEON (B2) to the Gynæcological and Obstetric Dept., vacant 30th April, 1948.

HOUSE SURGEON (B2) to the General Surgical Depts., vacant 30th April, 1948.

HOUSE SURGEON (B2) to the Fracture and Orthopædic Dept., vacant 23rd April, 1948.

HOUSE SURGEON (B2), combining E.N.T. duties, vacant 13th April, 1948.

HOUSE PHYSICIAN (B2), vacant 1st April, 1948.

Each appointment for 6 months. Salary £200 p.a., full residential emoluments.

Applications, stating age, qualifications with dates, and nationality, and accompanied by copies of 3 testimonials, should be sent to—

S. CECIL HILL, House Governor and Secretary.

COUNTY OF WARWICK. Warwick Hospital. (440 Beds.) E.N.T. REGISTRAR (B1) required, now vacant. Applicants should have had previous experience in E.N.T. surgery, and in first instance appointment for 12 months. Department is a well-equipped unit of 40 Beds and is recognised as a Class "A" E.N.T. Centre under the Emergency Hospital Scheme. Salary £500 p.a., plus cost-of-living bonus. Residential accommodation will be provided at the Hospital or a living-out allowance of £100 p.a. in lieu. The Warwick Hospital is approved for the Postgraduate Education of Medical Officers on Release from H.M. Forces.

Forms of application obtainable from H. J. KOTCH, Shire Hall, Warwick, to whom they should be returned as early as possible. Further particulars may be obtained from the Medical Superintendent of the Hospital (Telephone: Warwick 760).

ROYAL INFIRMARY AND CHILDREN'S HOSPITAL, Sunderland. (382 Beds.) DIRECTOR of Pathological Dept. Wide practical experience of pathology desirable. Salary £1750, by annual increments of £50 to £2000 p.a. The holder will be required to devote his whole time and attention to the department, but limited private practice will be allowed.

Applications, giving full details of experience, &c., with names of 3 referees, should be forwarded as soon as possible to—

F. DAGNALL, House Governor and Secretary.

Royal Infirmary, Sunderland.

COUNTY BOROUGH OF SUNDERLAND. General Hospital. Applications invited from registered medical practitioners holding B1 appointments (if ineligible for H.M. Forces), or members of H.M. Forces who have held posts within the senior establishment and who are due for early release, for appointment of DEPUTY MEDICAL SUPERINTENDENT, General Hospital, and ASSISTANT MEDICAL OFFICER to attached Highfield Public Assistance Institution. Applicants must possess a higher degree in medicine, and must have had considerable experience since qualification, including experience in the care of chronic sick. Appointee required to assist the Medical Superintendent in the administration of the Hospital, training of nurses, &c., the medical care of patients in Highfield Institution, including chronic sick and cases coming under the Lunacy Acts, and to deputise for the Medical Superintendent when required. Salary £606 p.a., by increments of £30 every 2 years to maximum of £690 p.a., plus appropriate cost-of-living bonus (at present £29 19s. 7d. p.a., if resident; £59 19s. 3d. if non-resident), with full board and residential emoluments valued for superannuation purposes at £135 p.a. As there are no married quarters, appointment of a married man would be "non-resident," but above-mentioned cash salary would be increased by £135 p.a. Appointment subject to the rules and regulations from time to time adopted by the Council, and any fees received for work within the scope of the engagement or earned within normal working time must be paid over to the Borough Treasurer, unless given specific permission by the Council to retain them. Appointment superannuated, subject to passing a medical examination satisfactorily, and determinable by 3 months' notice on either side.

Applications, stating age, qualifications with dates, and details of previous appointments and experience, with copies of 3 recent testimonials, should reach undersigned by 13th March, 1948. Canvassing, directly or indirectly, until after the first selection of candidates will disqualify.

G. S. MCINTIRE, Town Clerk.

Town Hall, Sunderland, 21st February, 1948.

COUNTY BOROUGH OF SUNDERLAND. House Surgeon (A) at the General Hospital (including duties in attached Public Assistance Institution). To R practitioners appointment for 6 months; otherwise, renewable. Salary £200 p.a., full residential emoluments valued for superannuation purposes at £135, plus bonus, at present £29 19s. 7d. Appointment subject to the rules and regulations from time to time adopted by the Council, and any fees received for work within the scope of the engagement or earned within normal working time must be paid over to the Borough Treasurer, unless given specific permission by the Council to retain them. Appointment superannuated, subject to passing a medical examination satisfactorily, and determinable by 1 month's notice on either side.

Applications, stating age, qualifications with dates, and details of previous appointments and experience, with copies of 1–3 recent testimonials should reach undersigned by 13th March, 1948.

Town Hall, Sunderland. G. S. MCINTIRE, Town Clerk.

HEREFORDSHIRE GENERAL HOSPITAL, Hereford. (154 Beds.) RESIDENT SURGICAL OFFICER (B1), Male. Applicants should have held house appointments and had surgical experience. Salary £250 p.a., full residential emoluments. Appointment for 12 months.

Applications should be sent immediately to—

T. W. UPTON, Secretary.

DERBYSHIRE ROYAL INFIRMARY, Derby. Applications invited from registered medical practitioners for following posts:—

ORTHOPÆDIC AND ACCIDENT SERVICE HOUSE SURGEON (B2), vacant 9th March, 1948.

CASUALTY OFFICER (A), vacant immediately.

The 2 posts form part of the surgical team and duties may be alternated to allow both officers to gain experience of primary and final treatment in the wards. Salary in each case £200 p.a., full residential emoluments. 6 months' appointments.

Applications to be sent as early as possible to—

ARTHUR TAYLOR, Superintendent and Secretary.

WEST SUFFOLK GENERAL HOSPITAL, Bury St. Edmunds. HOUSE SURGEON (A) with responsibility for E.N.T. and general surgery, vacant 1st March, 1948. Salary £200 p.a. Appointment normally for 6 months.

Applications, stating age, nationality, qualifications, with copies of 3 recent testimonials, should be addressed to the Secretary, E. E. HARDWICKE, F.H.A.

GRAYLINGWELL HOSPITAL, Chichester. House Physician (B2), Male or Female. Post provides special facilities in the Hospital for organised tuition and practice of modern psychiatry. Salary £350 p.a., full residential emoluments. Appointment in the first instance limited to 6 months and, unless held by a R practitioner, may be extended to 12 months.

Applications, giving full particulars, with copies of recent testimonials, to the Medical Superintendent as soon as possible.

CITY OF NOTTINGHAM. Applications invited for appointment of PÆDIATRICIAN. Appointment will be a joint one between the City of Nottingham Health and Education Depts. (including Pædiatric Wards at the City Hospital), the Nottingham Children's Hospital and the Hospital for Women, and the General Hospital, Nottingham, and the applicant appointed may be called into consultation at other hospitals or departments in the City. Applicants should be physicians with wide experience of pediatrics, should hold higher qualifications, and be prepared to engage solely in the practice of the specialty. Salary £1500 p.a., offered in the first instance, and there will be limited opportunity for private consultative practice. Terms and conditions of appointment will be reviewed at the commencement of the National Health Service.

Applications, stating nationality, age, qualifications, and experience, with copies of 1–3 testimonials and the names of 2 referees, to be sent by 20th March, 1948, to—

J. E. RICHARDS, Town Clerk.

The Guildhall, Nottingham, February, 1948.

CITY OF NOTTINGHAM MENTAL HEALTH SERVICE. MAPPERLEY HOSPITAL. JUNIOR ASSISTANT PHYSICIAN. Candidates should be in possession of a D.P.M. and have had experience in modern methods of psychiatric treatment. Salary £1000 p.a., non-resident. Plans for a house are in an advanced stage of approval, and salary would then be £800 p.a., with emoluments consisting of unfurnished house with light, fuel, and laundry valued for the purposes of the 1909 Asylum Officers Superannuation Act at £200. Opportunity available for experience in outpatients adult and child psychiatry and mental deficiency work. Successful candidate expected to take up duty 1st May, 1948. Suitably qualified R practitioners holding B1 appointments and ineligible for H.M. Forces invited to apply.

Applications, with full particulars and copies of 3 recent testimonials, should be forwarded to the Medical Officer of Mental Health, Mapperley Hospital, Nottingham, by 20th March, 1948.

GENERAL HOSPITAL, Nottingham. (589 Beds, including "The Cedars" Branch Hospital.) RESIDENT ORTHOPÆDIC AND FRACTURE OFFICER (B1), duties to commence 18th April. Applicants should have had previous experience in fracture and orthopædic work. The Orthopædic Dept. serves a large industrial district and the post offers exceptional experience in traumatic surgery. Appointment for 1 year in first instance. Salary £400 p.a., full residential emoluments.

Applications to be forwarded as soon as possible to—
HENRY M. STANLEY, House Governor and Secretary.

DISABLED PERSONS (EMPLOYMENT) ACT 1944. Applications invited from medical practitioners with experience in industrial medicine for appointments to Medical Interviewing Committee which are being established in the Derbyshire Royal Infirmary, Derby, the General Hospital, Nottingham, and the Royal Sheffield Infirmary and Hospital, Sheffield, to examine disabled persons and advise the Disablement Resettlement Service of the Ministry of Labour and National Service. Fee payable for session of 1½–2½ hours £2 12s. 6d., plus 10s. 6d. if appointed as Chairman.

Applications and requests for further information should be made to the Senior Medical Officer, Ministry of Health Regional Offices, Block 5, Government Buildings, Chalfont-drive, Western Boulevard, Nottingham.

COUNTY BOROUGH OF CARLISLE. City Maternity Hospital AND CITY GENERAL HOSPITAL. Applications invited from practitioners with at least 6 months' hospital experience for post of RESIDENT MEDICAL OFFICER (B2) in the City Maternity Hospital. Hospital recognised for instruction of medical students in obstetrics and as a training school for midwives, and there is scope for preparation for higher diplomas. Appointee also responsible for duties in the adjacent General Hospital. Salary offered £200 p.a., and the post will normally be held for 6 months.

Applications, stating age, nationality, medical school, date of qualification, appointments held, and experience, with copies of 1–3 testimonials or names for reference purposes, to be lodged with the M.O.H., 22, Fisher-street, Carlisle, as soon as possible. H. D. A. ROBERTSON, Town Clerk.

BURY INFIRMARY, Lancashire. (150 Beds.) Applications invited for appointments of HOUSE SURGEON (A) (Gynæcology and Obstetrics) and HOUSE PHYSICIAN (A), both posts vacant early March. To R practitioners appointments for 6 months; otherwise renewable. Salary £200 p.a., full residential emoluments.

Applications, giving full particulars, to undersigned as soon as possible. H. WILKINSON, Superintendent.

OLDHAM ROYAL INFIRMARY. First Assistant (whole time, non-resident) to the Orthopædic and Accident Service. Applicants must have specialised in orthopædics and fracture work and hold the qualification of F.R.C.S. (England) or a special qualification in orthopædics. Appointee expected to devote the whole of his time to the duties of the office. Commencing salary £750 to £1000 p.a., according to experience.

Applications, which should contain full particulars of experience and be accompanied by copies of 3 testimonials, should be forwarded immediately to—
F. W. BARNETT, House Governor and Secretary.

BROCKHALL CERTIFIED INSTITUTION FOR MENTAL DEFECTIVES, LANGHO, near BLACKBURN, LANCS. Applications invited from registered medical practitioners (Male or Female), including R practitioners holding B2 and (if ineligible for H.M. Forces) those holding B1 appointments, for post of ASSISTANT MEDICAL OFFICER (B1). Salary £465, by annual increments of £30 to £555 p.a., full residential emoluments valued at £200 p.a. An additional £50 p.a., payable to holders of the D.P.M. or recognised equivalent, with current cost-of-living bonus. There is no accommodation at present for a married man. Appointment pensionable, and successful applicant required to pass a medical examination. The Institution is modern, fully equipped, and accommodates 1996 patients, affording extensive experience in mental deficiency practice.

Applications, giving the usual particulars, should be sent to the Medical Superintendent as soon as possible.

LANCASHIRE COUNTY COUNCIL. Chief Assistant County MEDICAL OFFICER OF HEALTH. Applicants, who must possess a Degree or Diploma in State Medicine or Public Health, should have a sound knowledge of clinical medicine and practical experience in public health administration. Salary range £1300 p.a., by annual increments of £50 to £1400 p.a., plus cost-of-living bonus. When making the appointment, the Committee may take into consideration the candidate's present salary. Appointment subject to medical examination and is superannuable.

Application forms may be obtained from the County Medical Officer of Health, County Offices, Preston, to whom applications should be returned by 22nd March, 1948.
R. H. ADCOCK, Clerk of the County Council.
County Offices, Preston.

LANCASHIRE COUNTY COUNCIL. County Hospital, Ashton-UNDER-LYNE. (300 Beds.) ASSISTANT PHYSICIAN (non-resident). Candidates should possess a higher medical qualification and be experienced in general medicine. Appointment will be whole time and successful candidate required to reside within reasonable distance of the Hospital. Appointment is rendered vacant by the calling of the present Assistant Physician to service in H.M. Forces. It is intended that it should be held by the successful candidate during the period of absence on service. Salary £1000 p.a., by annual increments of £50 to a maximum of £1200 p.a., plus cost-of-living bonus.

Form of application and terms of appointment may be obtained from the County Medical Officer of Health, Hospital and Medical Department, County Offices, Preston, to whom applications must be forwarded by 8th March, 1948.
R. H. ADCOCK, Clerk of the County Council.
County Offices, Preston, 6th February, 1948.

LANCASHIRE COUNTY COUNCIL. County Hospital, Ashton-UNDER-LYNE, near MANCHESTER. JUNIOR RESIDENT MEDICAL OFFICER (B2), Male or Female. Salary £250 p.a., cost-of-living bonus and full residential emoluments. To R practitioners appointment limited to 6 months; otherwise may be renewed for a further 6 months. Appointment subject to medical examination and superannuable.

Forms of application may be obtained from the County Medical Officer of Health, Hospital and Medical Department, County Offices, Preston, to whom all applications must be forwarded by 8th March, 1948.
R. H. ADCOCK, Clerk of the County Council.
County Offices, Preston, 12th January, 1948.

LANCASHIRE COUNTY COUNCIL. Public Health Committee. COUNTY HOSPITAL, WHISTON, PRESCOT, near LIVERPOOL. HOUSE SURGEON (E.N.T.) (B2), Male or Female. Hospital approved for the D.L.O. To R practitioners appointment limited to 6 months; otherwise successful applicant eligible for reappointment for a further 6 months. Salary £250 p.a., plus cost-of-living bonus and full residential emoluments.

Forms of application may be obtained from the County Medical Officer of Health, Hospital and Medical Department, County Offices, Preston, to whom they must be returned by 8th March, 1948. R. H. ADCOCK, Clerk of the County Council.
County Offices, Preston, 12th February, 1948.

BOROUGH OF ACCRINGTON. Applications invited from registered medical practitioners for appointment of MEDICAL OFFICER OF HEALTH to the Borough of Accrington in accordance with the provisions of the Sanitary Officers (Outside London) Regulations, 1935. Appointee required to carry out the usual duties pertaining to the office of M.O.H., and will be in charge of the Corporation's maternity and child welfare service. It is expected that he will also be appointed Divisional School Medical Officer to the No. 11 Divisional Executive of the Lancashire County Education Authority. Inclusive salary £1100 p.a. (including cost-of-living bonus). Post subject to the Local Government Superannuation Act, 1937. It is anticipated that for the purposes of the National Health Service Act, 1946, the person appointed will also become an officer of the Lancashire County Council as from 5th July, 1948.

Forms of application and full particulars of duties and conditions of appointment may be obtained from undernamed, to whom completed form of application should be returned by 23rd March, 1948. P. D. WADSWORTH, Town Clerk.
Town Hall, Accrington, 21st February, 1948.

CITY OF SALFORD. Applications invited for post of Visiting ORTHOPÆDIC SURGEON at Hope Hospital, Salford. Appointment for 4 sessions per week on a temporary basis for the time being. Remuneration in accordance with the agreement between the B.M.A. and Associations of Local Authorities.

Applications, with particulars of experience and names of 2 referees, should be forwarded to the M.O.H., 143, Regent-road, Salford, 5, by 6th March, 1948.
H. H. TOMSON, Town Clerk.

ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY, WIGAN. HOUSE SURGEON (A), now vacant. Salary £150 p.a., full residential emoluments. To R practitioners appointment for 6 months; otherwise may be extended for a further period.

Applications, stating age, qualifications with dates, and nationality, with copies of 3 recent testimonials, should be sent as soon as possible to—
A. STANLEY BRUNT, General Superintendent and Secretary.

ROCHDALE INFIRMARY. The Board of Management invites applications for appointment of PATHOLOGIST. Salary £900 p.a., plus private fees, guaranteed up to £100 by the Committee.

Applications, with copies of recent testimonials, should be made immediately to undersigned, from whom further information may be obtained. W. WYNNE.
Infirmary Office. Superintendent and Secretary.

COUNTY MENTAL HOSPITAL, Lancaster. (3000 Beds.) House PHYSICIANS (B2). Salary £300 p.a., full residential emoluments. Appointments limited to 6 months but may be extended to 12 months unless held by a R practitioner. Previous general hospital experience desirable. The persons appointed will work under the direction of Senior Psychiatrists.

Apply: Medical Superintendent.

ROYAL LANCASTER INFIRMARY, Lancaster. (226 Beds.) HOUSE PHYSICIAN (A), Male or Female, vacant 1st April, 1948. Salary £225 p.a., full residential emoluments. Appointment limited to 6 months.

Applications and testimonials should be sent to—
F. A. MILNES, Superintendent-Secretary.

ROYAL LANCASTER INFIRMARY, Lancaster. (226 Beds.) Senior HOUSE SURGEON (B1), Male, vacant 1st April, 1948. This post recognised by the Royal College of Surgeons of England. Salary £325 p.a., full residential emoluments.

Applications and testimonials should be sent to—
F. A. MILNES, Superintendent-Secretary.

LIVERPOOL COUNTY BOROUGH. Local Education Authority. CHILD GUIDANCE CLINIC. Applications invited from suitably qualified practitioners for whole-time post of PSYCHIATRIST in the school health service. Salary £1000 p.a. Appointee required to reside within the City and devote whole-time service to the Local Education Authority under the direction of the School Medical Officer, and will not be allowed to undertake any private practice. Appointment subject to the standing orders of the City Council and to the Local Government Superannuation Act, 1937. Successful candidate required to pass medical examination.

Application forms may be obtained from the School Medical Officer, Municipal Annexe, Dale-street, Liverpool, 2, and should be returned, with copies of 3 recent testimonials, by 22nd March, 1948, and endorsed "Child Guidance Clinic," to the Town Clerk, Municipal Buildings, Liverpool, 2. Candidates serving in H.M. Forces overseas need not complete the official form of application, but may submit direct applications, giving particulars of age, qualifications, and experience, the number of their release group, and the names of 1–3 persons to whom the Local Education Authority may refer. Canvassing of members of the Education Committee or the City Council is strictly prohibited, and will be considered a disqualification.

THOMAS ALKER, Town Clerk,
and Clerk to the Local Education Authority.

CITY OF LIVERPOOL. Walton Hospital, Rice-lane, Liverpool, 9. RESIDENT ASSISTANT MEDICAL OFFICER (B2), Male or Female. To R practitioners appointment limited to 6 months; otherwise 12 months. Duties in connexion with the Maternity Ward. Salary £200 p.a., full residential emoluments and cost-of-living bonus. All fees received in connexion with appointment to be handed over to the City Council. Appointment subject to the standing orders of the City Council, and will be determinable by 1 month's notice on either side.

Applications, stating whether R practitioner, age, nationality, qualifications with dates, experience and details of present and previous appointments, and accompanied by copies of recent testimonials, should be endorsed "Resident Assistant Medical Officer" and sent by 10th March, 1948, to—

THOMAS ALKER, Town Clerk.
Municipal Buildings, Dale-street, Liverpool, February, 1948.

THE ROYAL LIVERPOOL CHILDREN'S HOSPITAL, Myrtle-street, LIVERPOOL, 7. CASUALTY OFFICER, vacant 1st April, 1948, for 6 months. Salary £200 p.a., full residential emoluments.

Applications, accompanied by copies of recent testimonials, should be sent to the Secretary immediately.

LIVERPOOL AND DISTRICT HOSPITAL FOR DISEASES OF THE HEART, 34, Oxford-street, LIVERPOOL, 7. HOUSE PHYSICIAN (A), Male or Female, to commence immediately. Appointment for 6 months. Salary £100 p.a., full residential emoluments. Facilities for M.D. thesis.

Applications to the Secretary.

THE UNIVERSITY OF MANCHESTER. Applications invited for appointment to a newly instituted CHAIR OF PSYCHIATRY. Appointment whole time. Salary within range £1500–£2500 p.a., with superannuation under the F.S.S.U. and a children's allowance. Duties to commence from a date to be arranged.

Applications should be sent by 9th April, 1948, to the Registrar, the University, Manchester, 13, from whom further particulars may be obtained.

MANCHESTER CORPORATION. Withington Hospital. (Adult General—1150 Beds.) Applications invited from registered medical practitioners, Male or Female, including those in H.M. Forces, for appointment of ORTHOPÆDIC HOUSE OFFICER (B1) responsible for orthopædic work of above Hospital. Appointee would act under the direction of the Visiting Consultant Orthopædic Surgeon, and be responsible for both inpatients and outpatients. Appointment limited in tenure to maximum of 1 year's duration. Basic salary £430 p.a., board, residence, and laundry in addition valued at £150 p.a., subject to the Manchester Corporation conditions of service.

Full information and forms of application may be obtained from the M.O.H., Hospitals Administration Section, P.O. Box 399, Town Hall, Manchester, 2, and applications must be received by him not later than 5th March, 1948. Canvassing in any form is prohibited. PHILIP B. DINGLE, Town Clerk.

Town Hall, Manchester, 2, 19th February, 1948.

SAINT MARY'S HOSPITALS, Manchester. Gynæcological House SURGEON (Male or Female) for 6 months. Salary £75 p.a., full residential emoluments.

Applications to be sent immediately to—

A. R. WISE, General Superintendent.

ALTRINCHAM GENERAL HOSPITAL. Applications invited for post of PATHOLOGIST. Appointment is intended to be full time, but daily attendance amounting to not less than 6 half-day sessions weekly would be considered. Applicants must be exclusively engaged in the practice of pathology, and experience in all branches of pathology desirable. Post non-resident with a salary of £750–£1000 p.a. Successful candidate will be encouraged to engage in private practice, for which there is considerable scope, and this will not be limited to patients in the private wards. He will be expected to undertake such work in the Hospital laboratory, a proportion of the private fees being retained by the Hospital.

Applications, giving full particulars and the names of 2 referees, should be sent by 13th March, 1948, to the General Superintendent and Secretary.

CHRISTIE HOSPITAL AND HOLT RADIUM INSTITUTE, MANCHESTER, 20. The Board of Management propose to appoint 2 HONORARY ASSISTANT SURGEONS and invite applications from registered medical practitioners holding a higher surgical qualification.

Applications (20 copies), stating age, qualifications, and details of experience, with the names of 3 referees, should be sent by 20th March, 1948, to undersigned, from whom further particulars may be obtained. A. H. KEATES, Superintendent.

THE DAVID LEWIS COLONY, Warford, Alderley Edge, near MANCHESTER. Applications invited for post of RESIDENT MEDICAL OFFICER (Male or Female) at above Epileptic Colony. Salary £325 p.a., full residential emoluments. The appointment should be combined with research or other post-graduate work.

Applications should be sent to the Medical Director.

THE MINISTER OF HEALTH invites applications for appointment of JUNIOR PART-TIME MEDICAL OFFICERS in the Regional Blood Transfusion Service at Manchester. Apart from routine duties there will be facilities for serological and clinical work. Salary £360 p.a.

Applications, stating age, qualifications with dates, nationality, present appointment, if any, and previous experience, with proofs of 2 recent testimonials, should be sent to the Regional Blood Transfusion Officer, Royal Infirmary, Manchester, by 15th March, 1948.

ROYAL EYE AND EAR HOSPITAL, Bradford. (Voluntary Hospital—102 Beds.) RESIDENT AURAL HOUSE SURGEON (B2), Male, to take up duty as soon as possible. This post offers exceptional opportunity for training in all branches of E.N.T. work and the Hospital is recognised by the R.C.S. for the D.L.O. Salary £200 p.a., full residential emoluments. To R practitioners appointment limited to 6 months.

Applications should be sent immediately to—

ERNEST S. HEAP, Secretary-Superintendent.

BRADFORD CITY SANATORIUM, Grassington. Applications invited from registered medical practitioners for post of RESIDENT MEDICAL OFFICER (B1) at Grassington Sanatorium. Salary scale in accordance with the Askwith memorandum, plus full residential emoluments. Appointment subject to Local Government Superannuation Act, 1937, and successful candidate passing medical examination.

Form of application may be obtained from the M.O.H., Town Hall, Bradford, and should be returned to him by 18th March, 1948. W. H. LEATHEM, Town Clerk.

Town Hall, Bradford, February, 1948.

BRADFORD ROYAL INFIRMARY. Resident Medical Officer (B1), Male, single, vacant 1st April, 1948. 12 months' appointment. Salary £450 p.a., full residential emoluments. There are 372 Beds and 13 resident officers.

Applications, stating age, nationality, qualifications, and previous experience, with copies of 3 recent testimonials, should be sent by 8th March, 1948, to—

HY. TRUSSON, House Governor and Secretary.

HULL ROYAL INFIRMARY. Applications invited from medical practitioners holding a diploma in radiology for post of Whole-time NON-RESIDENT RADIOLOGIST (diagnosis). Salary £1000 p.a. Appointment in accordance with Ministry of Health Circular 202/46, and in the first instance limited to the interim period pending the establishment of the National Health Service.

Applications, accompanied by 3 testimonials or the names of 3 referees, as soon as possible to—

R. J. CARLESS, House Governor.

HULL ROYAL INFIRMARY, Applications invited for following posts (Male):—

FIRST HOUSE SURGEON (B2), vacant now.
HOUSE PHYSICIAN (B2), at Sutton Branch, vacant April.
HOUSE SURGEON (B2), Sutton Branch, vacant April.
CASUALTY OFFICER (A), vacant April.

Salary for each of above posts £200 p.a., full residential emoluments. Appointments for 6 months in the first instance, but will be terminable by 1 month's notice on either side.

Applications to: R. J. CARLESS, House Governor.

KINGSTON UPON HULL CORPORATION HEALTH DEPARTMENT. BEVERLEY ROAD HOSPITAL. (432 Beds.) Applications invited for under-mentioned appointments, from registered medical practitioners of either sex, including those now serving in H.M. Forces:—

SENIOR HOUSE OFFICER (surgical) (B1), tenable for 3 years. Salary £455 p.a., plus cost-of-living bonus, rising to £555 p.a. by annual increments of £25, plus full residential emoluments. If non-resident, the salary is plus £200 p.a. in lieu of residential emoluments.

JUNIOR HOUSE OFFICER (surgical) (A), tenable for 1 year. Salary £250 p.a., plus cost-of-living bonus and full residential emoluments. If non-resident, the salary is plus £150 p.a. in lieu of residential emoluments. To R practitioners appointment limited to 6 months.

Forms of application, conditions of appointment, &c., may be obtained from, and the form should be returned duly completed to, the M.O.H., Guildhall, Kingston upon Hull, as soon as possible.

VICTORIA HOSPITAL FOR SICK CHILDREN, Park-street, HULL. ASSISTANT PHYSIOTHERAPIST required. Non-resident. Salary as per J.N.C. and F.S.S.N. and H.O. Scheme in force.

Apply, with full particulars, to Matron.

THE KIDDERMINSTER AND DISTRICT GENERAL HOSPITAL. CASUALTY HOUSE SURGEON (A). Post vacant immediately to Male or Female. Salary £200 p.a., full residential emoluments. Limited to 6 months to R practitioners.

Applications should be sent immediately to—

C. M. SMITH, House Governor and Secretary.

HARROGATE AND DISTRICT GENERAL HOSPITAL. (272 Beds.) Applications invited from registered medical practitioners for following appointments:—

HOUSE PHYSICIAN (A), vacant 1st April, 1948. Salary £150 p.a., full residential emoluments.

HOUSE PHYSICIAN/RESIDENT PATHOLOGIST (B2), vacant 1st April, 1948. Salary £200 p.a., full residential emoluments.

Appointments are for 6 months.

Applications to the House Governor as soon as possible.

HARROGATE AND DISTRICT GENERAL HOSPITAL. (272 Beds.) (Recognised by the R.C.S. for Final F.R.C.S. examination requirements.) RESIDENT ANÆSTHETIST AND CASUALTY OFFICER (A), vacant 14th April, 1948. To R practitioners appointment for 6 months. Salary £150 p.a., full residential emoluments.

Applications as soon as possible to the House Governor.

YORK COUNTY HOSPITAL. (222 Beds.) **House Surgeon (B2),** Male or Female, whose main duties are in the Eye and E.N.T. Dept. (37 Beds, with busy Outpatient Clinics) but who will share in the general work of the Hospital, and in casualty duty. To R practitioners appointment for 6 months. Salary £175 p.a., full residential emoluments. Post recognised for D.O.M.S. and D.L.O. examinations and becomes vacant 1st April, 1948.

Applications to be sent by 15th March, 1948, to—
J. R. MACKRILL, Secretary.

YORK COUNTY HOSPITAL. (222 Beds.) **House Physician (B2),** Male or Female, vacant 9th March, 1948. To R practitioners appointment limited to 6 months. Salary £175 p.a., full residential emoluments.

Applications to be sent immediately to—
J. R. MACKRILL, Secretary.

YORK COUNTY HOSPITAL. (222 Beds.) **Resident Orthopædic** HOUSE SURGEON AND CASUALTY OFFICER (B1), vacant now. Appointment for 12 months. Salary £350 p.a., full residential emoluments.

Applications immediately to: J. R. MACKRILL, Secretary.

YORK COUNTY HOSPITAL. (222 Beds.) **Applications invited** for post of Part-time V.D. OFFICER for the County Hospital and the City of York, vacant 1st April. Salary £700 p.a. (based on the agreed scale of fees for part-time consultants employed by public health authorities). Private work is permitted. Applicants should produce evidence of special experience in V.D. work.

Applications, with 3 recent testimonials, should be made by 15th March to: J. R. MACKRILL, Secretary.

CITY OF YORK GENERAL HOSPITAL, Haxby-road, York. RESIDENT ASSISTANT MEDICAL OFFICER (B1). Salary at present £455 p.a., rising to £555 p.a. plus cost-of-living bonus. Appointment for 6 months in the first place and if satisfactory, thereafter on 1 month's notice on either side, and subject to the Local Government Superannuation Act and the passing of a medical examination. Duties mainly medical and preference given to applicants interested in Pathology and Bacteriology.

Applications as soon as possible to the Medical Superintendent.

CITY OF YORK GENERAL HOSPITAL, Haxby-road, York. Applications from registered medical practitioners invited for following posts:—

HOUSE PHYSICIAN (A) (including children's beds), vacant 14th April, 1948.

HOUSE SURGEON (A), vacant 24th April, 1948.

Salaries £270 p.a., plus cost-of-living bonus and full residential emoluments. To R practitioners appointments for 6 months.

Applications, stating age, qualifications with dates, nationality, and previous experience, with copies of 3 recent testimonials, should be sent to the Medical Superintendent as soon as possible.

HUDDERSFIELD ROYAL INFIRMARY. (321 Beds.)

RESIDENT ANÆSTHETIST AND ASSISTANT CASUALTY OFFICER (A), required to commence duty 1st April, 1948. Salary £150 p.a., full residential emoluments.

HOUSE SURGEON (A), required to commence duty 18th March, 1948. Salary £150 p.a., full residential emoluments.

To R practitioners appointments limited to 6 months.

Applications should be addressed to undersigned immediately, with copies of 3 recent testimonials.

H. J. JOHNSON, General Superintendent and Secretary.

COUNTY BOROUGH OF ROTHERHAM. Municipal General HOSPITAL. RESIDENT ASSISTANT MEDICAL OFFICER (A). Appointment for 6 months. Salary £200 p.a., full residential emoluments and a temporary cost-of-living bonus in accordance with the Council's scale.

Forms of application may be obtained from the Medical Superintendent, Municipal General Hospital, Moorgate, Rotherham, and must be returned, endorsed "Resident Assistant Medical Officer," as soon as possible to—
JOHN S. WALL, Town Clerk.

Municipal Offices, Rotherham, 17th February, 1948.

ROTHERHAM HOSPITAL, Doncaster Gate, Rotherham. (General Voluntary Hospital—150 Beds.) SECOND CASUALTY OFFICER (A), Male or Female, vacant about 1st March, 1948. Salary £225 p.a., full residential emoluments. To R practitioners appointment for 6 months.

Applications should be sent at once to the Secretary-Superintendent.

DONCASTER ROYAL INFIRMARY. (330 Beds.) **(Recognised** under the regulations for the D.O.) EYE AND EAR, NOSE, AND THROAT HOUSE SURGEON (A), Male. Appointment limited to 6 months. Salary £225 p.a., full residential emoluments. This large industrial area offers excellent opportunities for gaining experience.

Applications, stating age, qualifications with dates, nationality, and present post, and accompanied by copies of 3 recent testimonials, should be sent immediately to—
A. JONES, Secretary-Superintendent.

DONCASTER ROYAL INFIRMARY. (330 Beds.) **House Surgeon** (A), Male. Salary £225 p.a., full residential emoluments. To R practitioners appointment for 6 months.

Applications, stating age, qualifications with dates, and nationality, with copies of 3 recent testimonials, should be sent immediately to the Secretary-Superintendent.

DARLINGTON MEMORIAL HOSPITAL. (210 Beds.) **House** PHYSICIAN (A), vacant 28th March, or earlier by arrangement, if necessary. Salary £150 p.a., including full residential emoluments. Appointment for 6 months.

Applications to: G. W. BECKWITH, Secretary-Superintendent.

DARLINGTON MEMORIAL HOSPITAL. (210 Beds—Complement: 6 House Officers.) HOUSE SURGEON (A) to the Orthopædic Dept., now vacant. Salary £175 p.a., full residential emoluments. To R practitioners appointment limited to 6 months.

Applications, stating age, nationality, qualifications, and experience, with copies of testimonials, as soon as possible to—
G. W. BECKWITH, Secretary-Superintendent.

THE GENERAL INFIRMARY AT LEEDS. Applications invited from Fellows of the Royal College of Surgeons of England for the post of HONORARY AURAL SURGEON to the General Infirmary at Leeds. Information relating to the post will be supplied on reference to the House Governor. Suitably qualified practitioners serving with H.M. Forces are eligible to apply.

Applications (35 copies), with a similar number of copies of 3 recent testimonials, should reach undersigned by 31st March.
S. CLAYTON FRYERS, House Governor and Secretary.

THE GENERAL INFIRMARY AT LEEDS. Applications invited for post of HONORARY ASSISTANT PHYSICIAN to the General Infirmary at Leeds. Candidates must hold a degree in medicine of a British university and be Fellows or Members of the Royal College of Physicians of London. Information relating to the post will be supplied on reference to the House Governor. Suitably qualified practitioners serving with H.M. Forces are eligible to apply.

Applications (35 copies), with a similar number of copies of 3 recent testimonials, should reach undersigned by 31st March. Neither applications nor testimonials need be printed.
S. CLAYTON FRYERS, House Governor and Secretary.

THE GENERAL INFIRMARY AT LEEDS. Applications invited from Fellows of the Royal College of Surgeons of England, with special experience in thoracic surgery, for post of HONORARY ASSISTANT SURGEON to the Thoracic Surgical Dept. Information relating to the post will be supplied on reference to the House Governor. Suitably qualified practitioners serving with H.M. Forces are eligible to apply.

Applications (35 copies), with a similar number of copies of 3 recent testimonials, should reach undersigned by 31st March. Neither applications nor testimonials need be printed.
S. CLAYTON FRYERS, House Governor and Secretary.

WORKINGTON INFIRMARY. (Capacity 60 Beds.) **House** SURGEON (B2), Male, vacant now. Salary £300 p.a., full residential emoluments. To R practitioners appointment limited to 6 months.

Applications immediately to—
Dr. T. T. GRAHAM, Honorary Medical Secretary.

THE MINISTER OF NATIONAL INSURANCE proposes to constitute panels of doctors in current practice, for part-time duties (normally on a half-day sessional basis) in England, Scotland and Wales from which will be formed, as occasion requires, Medical Boards for assessing the extent of disablement by injury or disease in claims, and for other related matters arising under the National Insurance (Industrial Injuries) Act, 1946. Sessional remuneration (non-specialist): Chairman, £3 3s.; ordinary member, £2 12s. 6d. The Boarding Centres proposed are listed below under their Regional Centre. The Regional Controllers of the Ministry of National Insurance at the Regional Centres will supply on request an application form and particulars of remuneration, &c., to doctors desiring to be appointed for centres in their regions:—

Apply to Regional Controller, Ministry of National Insurance, at—	*for Boarding Centres at—*
NEWCASTLE-UPON-TYNE	*Carlisle*, Darlington, *Middlesbrough*, *Newcastle*, *South Shields*, *Sunderland*, Workington
LEEDS (Darley House, West-street, 1)	Bradford, *Doncaster*, Halifax, *Huddersfield*, *Kingston-on-Hull*, *Leeds*, *Sheffield*, *York*
NOTTINGHAM (Block 3, Government Buildings, Chalfont drive, Western Boulevard)	Derby, *Grimsby*, *Leicester*, *Lincoln*, Mansfield, *Northampton*, *Nottingham*, Peterborough
CAMBRIDGE (Old Post Office Buildings, Petty Cury)	*Cambridge*, *Chelmsford*, *Ipswich*, King's Lynn, *Luton*, *Norwich*, *Southend-on-Sea*, Watford
LONDON (105–106, New Bond-street, W.1)	*Great Smith-street*, *S.W.1*, *and 25*, *Gordon-street*, *W.C.1*, *Brighton*, *Canterbury*, *Guildford*, *Rochester*, *Tunbridge Wells*
READING (22, Southcote-road)	*Aylesbury*, *Bournemouth*, Oxford, *Portsmouth*, *Reading*, *Ryde*, Slough, *Southampton*
BRISTOL ("Avon," Stoke Park-road South, 9)	*Bristol*, *Exeter*, *Gloucester*, *Plymouth*, *Salisbury*, Swindon, Tauntop, *Truro*, Yeovil
CARDIFF (Cathays Park)	Aberystwyth, *Bangor*, *Cardiff*, *Carmarthen*, Haverfordwest, Llanelly, *Newport*, Pontypridd, *Swansea*, *Wrexham*
BIRMINGHAM (Civic Centre, Broad-street, 1)	*Birmingham*, Burton-on-Trent, *Coventry*, Hereford, *Shrewsbury*, Stafford, *Stoke-on-Trent*, *Wolverhampton*, *Worcester*
MANCHESTER ("Heyscroft," Palatine-road, Didsbury)	Barrow, *Blackpool*, *Bolton*, Burnley, Chester, Crewe, Lancaster, *Liverpool*, *Manchester*, *Preston*
EDINBURGH (60, Melville-street, 3)	*Aberdeen*, Dumfries, *Dundee*, *Edinburgh*, *Glasgow*, *Inverness*, Kilmarnock, Kirkcaldy, *Motherwell*, *Paisley*, Selkirk, Stirling, Stornoway, Wick

At the towns shown in italics above, boards will be held in the existing centres of the Ministry of Pensions. Doctors who are on the Ministry of Pensions panels for these centres will receive an application form from that Department.

Completed application forms should be returned to the Regional Controller not later than 31st March.

HIGH WYCOMBE AND DISTRICT WAR MEMORIAL HOSPITAL. (100 Beds.) HOUSE SURGEON (A), now vacant. Salary £175 p.a., plus residential emoluments. To R practitioners appointment for 6 months.

Applications, with details, to: E. BARBER, Secretary.

SOUTHAMPTON CHILDREN'S HOSPITAL, Winchester-road, SHIRLEY. The Board of Management invite applications for appointment to the Honorary Medical Staff of a CHILD PSYCHIATRIST.

Applications, with copies of 3 recent testimonials, should be sent by 12th March to: ELLA K. MATTHEWS, Secretary.

PORT TALBOT AND DISTRICT GENERAL HOSPITAL. (85 Beds.) RESIDENT MEDICAL OFFICER (B2), Male or Female. To R practitioners appointment limited to 6 months. Salary £400 p.a., full residential emoluments.

Applications should be forwarded as soon as possible to Honorary Secretary, Medical Committee, Port Talbot and District General Hospital, Port Talbot, Glam.

COUNTY BOROUGH OF SWANSEA. Morriston Hospital. (450 Beds.) 2 HOUSE SURGEONS (A). Salaries £150 p.a., in addition medical quarters are provided, emoluments being valued at £100 p.a. To R practitioners appointment for 6 months.

Applications should be addressed to the Medical Superintendent, Morriston Hospital, Swansea, as early as possible.

T. B. BOWEN, Town Clerk.

The Guildhall, Swansea, 9th February, 1948.

WALSALL GENERAL HOSPITAL. (181 Beds.) Resident Surgical OFFICER (B1), vacant 1st April. Salary £300 p.a., plus full residential emoluments. Applicants should have held house appointments and had surgical experience.

Applications should be forwarded to the House Governor and Secretary.

COUNTY BOROUGH OF WALSALL. Assistant Medical Officer OF HEALTH, Male or Female. Commencing salary £675 p.a., by annual increments of £25 to maximum of £875 p.a., plus existing war bonus. Duties principally associated with the school medical service, but include such other duties as the M.O.H. may direct. Possession of the D.P.H. or its equivalent considered an advantage. Appointee required to devote the whole of his/her time to duties of the office. Appointment subject to 3 months' notice on either side, to the passing of medical examination, and to provisions of Local Government Superannuation Act, 1937.

Applications, on a form to be obtained from undersigned, stating age, qualifications, and experience, with copies of 3 recent testimonials, should be sent by 13th March, 1948, to—

JAMES A. M. CLARK, Medical Officer of Health.

Health Department, Council House, Walsall.

LLANDUDNO AND DISTRICT HOSPITAL, Llandudno. (70 Beds.) HOUSE SURGEON (A), Male or Female, now vacant. Salary £200 p.a., full residential emoluments. To R practitioners appointment for 6 months.

Applications to Secretary.

THE ROYAL GWENT HOSPITAL, Newport, Mon. (255 Beds.) HOUSE SURGEON (A), Male or Female, to the Fracture and Orthopædic Dept., vacant now. Salary £175 p.a., residential emoluments.

Applications, stating age, nationality, qualifications with dates, and details of previous appointments, with 3 recent testimonials, should be sent to: T. A. JONES, Secretary-Superintendent.

COUNTY OF BRECON. Applications invited from duly qualified medical practitioners for appointment of DISTRICT MEDICAL OFFICER OF HEALTH for the Southern Combined District of Breconshire, comprising the Urban District of Brynmawr, and the Rural Districts of Crickhowell, Vaynor and Penderyn and Ystradgynlais (acreage, 109,065; population 29,235 approximately). Applicants must be registered in the Medical Register as the holder of a Diploma in Sanitary Science, Public Health, or State Medicine, and must not be over 45 years of age at the date of application. Appointee required to perform all the duties prescribed for a M.O.H. in regulation 17 of the Sanitary Officers (Outside London) Regulations, 1935, and to devote the whole of his time to the duties of his office and must not engage in private practice as a medical practitioner. The person appointed required to reside in the Southern Combined Area of Breconshire. Salary £1040 p.a., plus cost-of-living bonus at present amounting to £60 p.a., with an allowance of £100 p.a. for travelling, subsistence, and provisions of office accommodation. Clerical assistance provided by the Local Authorities concerned. Appointment subject to approval of the Minister of Health, is governed, as regards tenure, by section 110 of the Local Government Act, 1933, and is pensionable under the provisions of the Local Government Superannuation Act, 1937. Successful candidate required to give at least 1 month's notice before resigning his appointment.

Applications, stating age, medical qualifications, and previous experience (if any), with copies of 3 recent testimonials, must be received by 13th March, 1948, by—

C. M. S. WELLS, Clerk of the Breconshire County Council.

County Hall, Brecon, February, 1948.

CUMBERLAND COUNTY COUNCIL. The County Council invite applications for post of ASSISTANT COUNTY MEDICAL OFFICER. Salary within the range of £700–£50–£850, according to qualifications and experience, plus cost-of-living bonus (£60). Travelling and subsistence allowances on the County scale for the time being in force. Applicants must be registered medical practitioners, holding the D.P.H. or corresponding qualification. Experience in the school health service, maternity and child welfare, and tuberculosis a recommendation.

Further particulars and forms of application may be obtained from the County Medical Officer, 11, Portland-square, Carlisle, to whom applications should be submitted before 25th March, 1948. G. N. C. SWIFT, Clerk of the County Council.

18th February, 1948.

DURHAM COUNTY HOSPITAL, North-road, Durham City. (12 Beds.) RESIDENT HOUSE SURGEON (B2), Male, duties to commence on or about 20th April, 1948. Appointment for 6 months. Salary £250 p.a., full residential emoluments.

Applications, with copies of 3 recent testimonials, to be sent immediately to the Secretary-Superintendent.

DURHAM COUNTY COUNCIL. Dryburn Emergency Hospital, DURHAM. TEMPORARY RESIDENT ASSISTANT MEDICAL OFFICER (A), Male and Female, now vacant. To R practitioners appointment for 6 months; otherwise 12 months. Salary £120 p.a., plus full residential emoluments valued at £100 p.a., with cost-of-living bonus equal to £59 19s. 3d. p.a. (cash £29 19s. 8d. emoluments £29 19s. 7d.). Appointment subject to the regulations for the time being of the County Council relative to the payment of salary in case of sickness and the successful applicant required to pass the County Council's medical examination. Appointment terminable by 1 calendar month's notice on either side.

Applications, stating age, liability for military service, medical fitness, position as regards deferment, &c., should be sent to the County Medical Officer of Health, Shire Hall, Durham.

J. K. HOPE, Clerk of the County Council.

Shire Hall, Durham, 10th February, 1948.

NORTHUMBERLAND COUNTY COUNCIL. Health Department. ASSISTANT TUBERCULOSIS OFFICER (whole time). Candidates should possess special knowledge and have experience of the modern methods of diagnosis and treatment of tuberculosis, including the ability to interpret chest X-ray films, and also be able to undertake A.P. refills. Successful candidate will work under the general administrative control of the County Medical Officer and the clinical control of the Senior Tuberculosis Officer. Salary £650 p.a., by annual increments of £25 to a maximum of £850 p.a., plus cost-of-living bonus. Appointment subject to Local Government Superannuation Act, 1937, and successful candidate passing medical examination. Appointment terminable by 3 months' notice on either side.

Applications, giving full details of age, qualifications, experience, and liability for military service, with copies of 3 recent testimonials, should reach the County Medical Officer, County Hall, Newcastle upon Tyne, 1, by 12th March, 1948.

J. B. TILLEY, County Medical Officer.

NORTHUMBERLAND COUNTY COUNCIL. Hexham General HOSPITAL. (Regional Orthopædic Centre—440 Beds.) Applications invited from registered medical practitioners, Male or Female, for appointment of 2 RESIDENT MEDICAL OFFICERS (B2), the duties of one of whom will include those of anæsthetist. To R practitioners appointment limited to 6 months; otherwise 1 year. Salary £200 p.a., full residential emoluments. In addition to the orthopædic work, a large amount of general surgery is carried out.

Applications, stating age, qualifications with dates, nationality, and accompanied by copies of 2 recent testimonials, should be sent by 6th March, 1948, to—

JOHN B. TILLEY, County Medical Officer.

County Hall, Newcastle upon Tyne, 1.

UNIVERSITY OF ABERDEEN. Lectureship in Bacteriology. Applications are invited for post of Lecturer in the Dept. of Bacteriology. Salary £600–£750, according to qualifications and experience. Persons desirous of being considered for the office should be graduates in medicine and have experience of general hospital bacteriology.

Applications should reach the Secretary to the University (from whom forms of application and conditions of appointment may be obtained) by 27th March, 1948.

The University, Aberdeen. H. J. BUTCHART, Secretary.

UNIVERSITY OF ABERDEEN. The University Court will shortly proceed to the appointment of a Full-time LECTURER IN CHILD HEALTH at a salary of £500–£600, or £600–£750, or £750–£900, placing according to qualifications and experience, with F.S.S.U. and children's allowance.

Applications should reach the Secretary to the University (from whom forms of application and conditions of appointment may be obtained) by 27th March, 1948.

H. J. BUTCHART, Secretary.

CITY OF ABERDEEN. Public Health Department. Applications invited from qualified medical practitioners for appointment of ASSISTANT BACTERIOLOGIST in the Municipal Laboratories at the City Hospital. Applicants must have had good practical experience in bacteriology and some experience in clinical pathology. Salary scale £750, by annual increments of £25 to £900, with current cost-of-living bonus, commencing at £90 p.a. The post is superannuable.

Applications should be submitted to Dr. Smith, The Laboratory, City Hospital, Aberdeen, on or before 10th March, 1948.

Town House, Aberdeen. J. C. RENNIE, Town Clerk.

THE ASTLEY AINSLIE HOSPITAL, Edinburgh. The Governors of the above Hospital invite applications from fully qualified medical practitioners (Male or Female) for whole-time post of ASSISTANT MEDICAL SUPERINTENDENT. The Hospital deals with medical and surgical cases in the early stages of convalescence. Salary £550, or more according to experience, together with board and residence.

Applications, stating age and experience, and enclosing copies of testimonials, should reach the Medical Superintendent by 15th March, 1948.

INVERNESS DISTRICT MENTAL HOSPITAL. Junior Assis-TANT MEDICAL OFFICER (B1). Salary £490 p.a., board, lodging, and laundry. Suitably qualified R practitioners holding B2 or B1 appointments may apply, but they must have obtained sanction of the Scottish Central Medical War Committee. Appointment subject to the Asylums Officers Superannuation Act, 1909.

Applications to be sent to the Medical Superintendent.

PUBLISHED by the PROPRIETORS, THE LANCET LIMITED, 7, Adam Street, Adelphi, in the County of London.
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LYMINGTON AND DISTRICT HOSPITAL, Hampshire. (107 Beds.) HOUSE PHYSICIAN AND CASUALTY OFFICER (A). Appointment for 6 months. Salary £175 p.a., full residential emoluments.

Applications, stating age, qualifications, and nationality, with copies of 3 recent testimonials, immediately to—

N. P. WOOD, Secretary.

THE QUEEN'S UNIVERSITY OF BELFAST. The Senate intends to proceed to the appointment of 2 TUTORSHIPS IN OBSTETRICS, a Senior Tutorship, salary of £400 p.a., and a Junior Tutorship, salary of £300 p.a., both inclusive of board and lodging in the Royal Maternity Hospital, in which Hospital the successful applicants will be required to reside.

Further details of these appointments may be obtained from the Secretary. Closing date for applications, 31st May, 1948.

G. R. COWIE, Secretary.

UNIVERSITY OF CAPE TOWN. Posts in Medical School. Applications invited for following vacant posts on the permanent staff :—

(*a*) SENIOR ASSISTANTS (1 in bacteriology and 1 in pathology). The Senior Assistant in Pathology must have a registrable medical qualification and the Senior Assistant in Bacteriology must have either a registrable medical qualification or other suitable scientific qualification.

(*b*) SENIOR LECTURER IN PHYSIOLOGY. Candidates must have a scientific qualification in physiology; a medical qualification will be a recommendation. Lecturer required to teach in practical classes in human and experimental physiology and to take part in the routine lecturing.

Salary for each post £1000 p.a., plus a personal non-pensionable allowance of £200 p.a. and a temporary cost-of-living allowance (at present £84 p.a. for a married man and £28 p.a. for a single man).

Applications (with copies of testimonials) must be submitted in triplicate and must give age, qualifications, and experience, and the names of 2 or 3 referees to whom the University may refer. 2 copies of the application must reach the Secretary of the Universities Bureau of the British Empire, 8, Park-street, London, W.1, by 5th April, 1948, and the other copy sent direct to the Registrar, University of Cape Town, Private Bag, Rondebosch, South Africa. A memorandum giving the general conditions of appointment is obtainable from the Secretary of the Universities Bureau.

UNIVERSITY OF SYDNEY. The Senate will shortly proceed to the appointment to the newly established CHAIR OF PHARMACOLOGY. Duties of the Chair include tuition in pharmacology to senior medical students and the direction of tuition in materia medica and allied pharmaceutical subjects to pharmacy and science students. Salary £1500 p.a. (Australian). To this salary the University adds a yearly sum equal to 10% by way of contribution to the Sydney University Professorial Superannuation System under which there is a retirement provision on the lines of F.S.S.U.; the Professor's own contribution to the system will be at the rate of 5% of his salary. In addition, the Professor will be entitled to receive a pension of £400 p.a. upon retirement after attaining the age of 60 years. In order to encourage research and to maintain the standards of teaching in his department, 1 year's sabbatical leave may be granted on full pay every 7 years or thereabouts. Travelling expenses will be paid as arranged at time of appointment; generally speaking they will cover first-class steamer fare in the case of a successful applicant coming from abroad.

The Senate will be glad to hear, before 30th June, 1948, from anyone who would like to be considered for the appointment. Further particulars may be obtained from the Secretary, Universities Bureau of the British Empire, 8, Park-street, London, W.1.

G. DALE, Registrar.

THE GOVERNMENT OF IRAQ require the following staff :—

For the *Public Health Dept.*, mainly in the principal provincial cities: MALARIOLOGISTS. Salary Iraq Dinars 1800 a year and high cost-of-living allowance I.D.288 a year (I.D.1 = £1). Appointments will be on contract for 3 years in the first instance and renewable. Provident fund. Free first-class passages and liberal leave on full salary.

For the *Royal Hospital and Medical College, Baghdad*: PROFESSOR OF E.N.T. DISEASES (for both teaching and practical work). Salary I.D.1800 a year and high cost-of-living allowance I.D.288 a year, with possibility of annual increments of I.D.60. Other terms as above.

Private practice allowed in all cases. Candidates must be British subjects, hold specialist qualifications, and have had several years' specialist experience. In the case of the Royal Hospital and Medical College Staff, they must also have had previous teaching experience.

Also required is an ASSISTANT PROFESSOR OF PHYSICS AND CHEMISTRY. Salary I.D. 1200 a year, plus high cost-of-living allowance I.D.288 a year. Candidates must hold an honours degree and have had appropriate teaching experience, preferably in a medical or pharmacy school. Other terms as above.

Apply at once by letter, stating age, whether married or single, and full particulars of qualifications and experience, and mentioning this paper, to the Crown Agents for the Colonies, 4, Millbank, London, S.W.1, quoting M/SA/922/5/3F on both letter and envelope.

CITY OF BIRMINGHAM PUBLIC HEALTH DEPARTMENT. HOLIDAY LOCUMS. Applications invited for temporary appointment of 3 Whole-time MEDICAL OFFICERS (Female) to take holiday duty during the summer months. One commencing 19th April, 1948, and the others commencing 16th May, 1948. Appointments are non-resident, and the salary offered is £13 10s. per week. Successful applicants will be expected to remain, if required, for a period of 6 months.

Application forms may be obtained from the M.O.H., Council House, Birmingham, 3, and completed forms should be returned to him, with copies of 3 testimonials, by 13th March, 1948.

THE SOUTH CANTERBURY HOSPITAL BOARD, Timaru, NEW ZEALAND. Practice in Radiology. Applications by air-mail, closing with undersigned 31st March, 1948, are invited for position of Part-time RADIOLOGIST to the Timaru Public Hospital with the right of private practice. Competent full-time Radiographer employed. Salary £800 N.Z. p.a., with 4 weeks' annual leave. In addition, successful applicant will have option of operating a private hospital radiology practice on the following basis: a guaranteed fee of £200 p.a., plus half the net profits which last year were £360. There are good prospects in this practice. In any case the Hospital Board guarantees a total annual income of not less than £1200 N.Z. p.a.

Applicants to state age, married or single, qualifications, previous experience, and to enclose 1–3 copies only of recent testimonials. Also approximate date could take up duties. New 5-roomed house, modern conveniences, available for appointee at moderate rental. Further particulars may be obtained from the office of the High Commissioner for New Zealand, 415, Strand, London.

H. G. NAYLOR, Secretary to Board.

P.O. Box 88, Timaru, New Zealand, 28th January, 1948.

Ex-I.M.S. Officers, Canadian. Retired Canadian officers of the Indian Medical Service, in or passing through the U.K., are advised to contact the Senior Canadian Air Force Liaison Officer, 11, Hill-street, London, W.1, regarding employment in Canada with the Royal Canadian Air Force.

COVENTRY JOINT LABORATORY. Experienced Biochemist required to take charge, under the Medical Director, of the Biochemical Dept. at the above Laboratory. Salary range £500–£750 p.a. (according to qualifications and experience). Applicants, who must possess a science degree, should have had postgraduate experience and be familiar with the scope of biochemical investigations in a large clinical laboratory. Appointment superannuated.

Applications, with copies of testimonials, to be addressed to the Medical Director, The Coventry Joint Laboratory, The Coventry and Warwickshire Hospital, Stoney Stanton-road, Coventry.

COUNTY BOROUGH OF WOLVERHAMPTON. New Cross HOSPITAL. Applications invited for appointment of LABORATORY TECHNICIAN, grade B, to take charge of laboratory at above Hospital. Salary and conditions are in accordance with the recommendations of the Joint Committee on Salaries and Wages (Hospital Staffs).

Forms of application may be obtained from the Director of Social Welfare, 183, Stafford-street, Wolverhampton, and should be returned to him as soon as possible. J. BROCK ALLON,

Town Hall, Wolverhampton. Town Clerk.

Edgware district—Private and Panel Practice for Sale. Panel about 560.—Address, No. 945, THE LANCET Office, 7, Adam-street, Adelphi, London, W.C.2.

Vacancies are occurring from time to time for Assistants, Locums, Hospital Locums, and Ships' Surgeons appointments. Practices and Partnerships for Disposal.—Write: A. SHAW, Medical Agent, Premier Buildings, 88, Church-street, Liverpool, 1.

Wanted, Practice or Partnership, Southern England, about £2000 p.a. Reliable Locums and Assistants required.—GRIFFITHS' MEDICAL AGENCY, 30, Bridge-street, Newport, Mon.

Educated Lady seeks post as Receptionist to Doctor or Biochemist.—Miss TIGWELL, Kingsley Hall, Dagenham.

Woman Science Graduate, aged 42, long experience as Secretary Technician to London Consultant, hospital experience, disengaged shortly, desires post.—Address, No. 947, THE LANCET Office, 7, Adam-street, Adelphi, London, W.C.2.

Australian ex-Army Nursing Sister, knowledge shorthand-typing, 4 years' hæmatology work, seeks position Receptionist, preferably with Pathologist, otherwise Specialist. Previous receptionist experience.—Address, No. 948, THE LANCET Office, 7, Adam-street, Adelphi, London, W.C.2.

Accommodation, retired doctor's house, private telephone, every comfort, first-class food and service. Suitable convalescent needing heliotherapy or young practitioner.—Address, No. 946, THE LANCET Office, 7, Adam-street, Adelphi, London, W.C.2.

A ready market for Microscopes. We pay the highest prices obtain-able for fine modern apparatus.—WALLACE HEATON LTD., 126/7, New Bond-street, London, W.1 (MAYfair 7511).

Parker-Knoll Easy Chairs can now be supplied to Doctors for surgeries, waiting-rooms, &c., by D. MATTHEWS & SON LTD., 14/16, Manchester-street, Liverpool, 1.

For Sale, Half Skeleton, complete. Nearest offer £15. Also femur, cranium, vertebræ, radius, ulna, 15s.—M. C. KERBY, 18, Royal Park, Clifton, Bristol, 8.

Electric Razors available for medical use, Remington, Schick, Shavemaster, &c., and spares; also non-electric shavers.—Write: HILLS, 6, Blunt-road, South Croydon.

Testimonials Duplicated: First-class, accurate, and neat work, moderately priced.—DOROTHY SHIRLEY, 138, Green-lane, Edgware, Middlesex (Telephone: EDGware 1575).

First-class Duplicating, Reports, Memoranda, Magazines, Bulletins, &c. Typewriting. Inquiries invited.—MABEL EYLES, 2, Aberdeen-park, Highbury-grove, N.5 (Telephone: CANonbury 3862).

National Health Service.—Parliamentary Reports—giving extracts from "Hansard" on the above subject—available from Industrial Advisory Bureau. 10 reports supplied for £1 1s. (specimen report 1s.). Other reports issued on "Housing," "Agriculture," "Transport," Economics," &c.—Full particulars: INDUSTRIAL ADVISORY BUREAU, 12, Buckingham-street, W.C.1.

Dr. E. Wallois, 12, Rue de l'Ancienne Comedie, Boulogne-sur-Mer, Pas de Calais, France, wishes his son, aged 23, to spend month with English family and offers hospitality to doctor's son this summer in exchange.

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